THE DEVELOPMENT, IMPLEMENTATION, AND EVALUATION OF A MUSIC INTERVENTION PROGRAMME FOR AUTISTIC CHILDREN

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BY

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ABSTRACT

First and foremost, the writer developed a music intervention programme with an aim to facilitate the acquisition and improvement of communication and prosocial behaviour in autistic children. Secondly, the music programme was piloted on 3 autistic children over a 10-week period. Next, this highly descriptive study investigated the programme's potential impact on the communication (both verbal and non-verbal) and socialization skills of each child within the study.

The sample consisted of 3 boys, ages 7-, 9-, and 11-years, who were residents of St. John's, Newfoundland, Canada, and who had previously received a diagnosis of autism. For the purposes of the study, the children were selected to represent three diverse developmental levels; i.e., low-functioning, mid-range functioning, and high-functioning. Two of the boys had parents engaged in professional occupations, while one boy's parent was a clerical worker.

A mixed design was employed in this investigation; both quantitative and qualitative data were gathered. A quasi- single-subject design employing base-line, in-programme, and post-programme evaluation was used to obtain quantitative data. Anecdotal data, based on teachers' weekly observations and subjective judgements of children's progress were combined with the quantitative data to describe the programme's impact.

The creative therapeutic components—e.g., Orff-based music therapy, elements of dance and play therapy,—were integrated in this music programme in order to form one holistic approach to the child. The therapies were interwoven to effectively meet the socialization needs of each child. Since the autistic child was viewed within the context of the complete familial system, family and media therapy were potential therapeutic adjuncts within the music intervention programme.

The results indicated that the programme was an effective treatment tool, particularly in the areas of language, body and object use, and social interaction. Both the high-functioning and mid-range functioning autistic children made behavioural and social gains throughout the intervention. However, the low-functioning autistic child indicated the greatest, consistent gains. He maintained his behavioural and social progress, and subsequently built upon acquired gains in each ensuing session. Additionally, the low-functioning autistic boy showed a deep pleasure in making music, not only alone, but also with others.

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I share this accomplishment with my husband, David, whose love, understanding, and encouragement sustained me from the time the study was a dream, through its

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CHAPTER I

INTRODUCTION AND BACKGROUND TO THE STUDY

Results of research indicate that autistic children often demonstrate a real interest and sometimes a talent in musical areas (Bergman & Escalona, 1949; Churchill, Alpern, & DeMyer, 1971; DesLauriers & Carlson, 1969; Despert, 1947; Euper, 1968; Kanner, 1943; Pronovost, 1961; Rimland, 1964; Ritvo & Provence, 1953; Saperston, 1973; Sherwin, 1953; Schulman, 1963; Vetter, 1970; Wing, 1966).

Noting the frequency of these reports, Euper (1968) concluded:

> *That interest or ability in music is an outstanding characteristic of early infantile autism is reflected in the frequency and way in which it is reported. Such frequent mention of musical preoccupation is not found in the literature concerning other conditions, such as mental deficiency or childhood neurosis, nor in the reported cases of childhood schizophrenia that are clearly not autistic. (p.187)*

This writer's review of the literature on treatment methods used with autistic children reveals that music therapy has been found to be effective in establishing communication and prosocial behaviour in this special population. A consideration of the roots of music in our civilization may help to explain why music could possibly be helpful in working with autistic children, who have been generally reported both as: (a) having disturbances in relating appropriately with people, objects, and events (National Society for Autistic Children, 1977); and (b) exhibiting unusual responses to music.

Lang (1941) explained that music has been acknowledged in all languages as having descended from the muses, and to have been "muse-inspired". Music occupied the chief position in Plato's system, and in Greek philosophy overall. Plato suggested an analogy between the musical progressions and the movement of the soul. The Greek philosopher hypothesized that music, rather than being a mere amusement, may be regarded as a harmonic education which may quiet the

passions and lead towards the perfection of the soul. Musicologists have drawn the conclusion, based on writings from the Greek philosophers, that music may serve as a bridge between ideas and phenomena, thus becoming one of the most immediate expressions of eros (Lang, 1941).

In the antique world, the primary role of music pertained to pedagogy in a "public" sense, because the effects of the music were believed to facilitate the building of character and the molding of morals. Each melody, instrument, and rhythm was perceived as having its own particular effect on the moral nature of the state and of the individual. In reflection of the Greek belief-system, the same word "nomos" was used to mean logic and correct musical harmony, and also the social, political, and moral laws of the state (Lang, 1941).

The concept that a relationship exists between sounds (tonal combinations), cosmic phenomena (i.e., parts of the day, seasons of the year, growth and weather, sun and moon cycles, birth and death, man and woman, reincarnation, healing), and human temperament was brought from the Orient, reaching its culmination in the Greek "doctrine of ethos" (Lang, 1941). The doctrine of ethos attempted to answer the question: what effect does music have on the character of the individual? Simultaneously, music became more ordered, and its components became more segregated. This concept explains the level of significance the Greeks allocated to the role of music within their political system and in their education.

Lang (1941) explained the Greek belief-system pertaining to the doctrine of ethos:

> *According to their writers [Greeks] the will can be decisively influenced by music in three ways. It can spur to action; it can lead to the strengthening of the whole being, just as it can undermine mental balance; and finally, it is capable of suspending entirely the normal willpower, so as to render the doer unconscious of his acts. (p.14)*

In the Republic, Plato (427-347 B.C.) recognized the importance of education in music:

Hence...the decisive importance of education in poetry and music: rhythm and harmony sink deep into the recesses of the soul and take the strongest hold there, bringing the grace of body and mind which is only to be found in one who is brought up in the right way. Moreover, a proper training in this kind makes a man quick to perceive any defect or ugliness in art or in nature. Such disformity will rightly disgust him. Approving all that is lovely, he will welcome it home with joy into his soul and, nourished thereby, grow into a man of noble spirit. All that is ugly and disgraceful he will rightly condemn and abhor while he is still too young to understand the reason; and when reason comes, he will greet her as a friend with whom his education has made him long familiar. (p.90)

Aristotle (384-322 B.C.), in his work the Politics, also described the power of music with reference to the modes (divisions of the tetrachord) used by the ancients, and the subsequent need of including music education in the curriculum of the young:

For even in the nature of mere harmonies there are differences, so that people when hearing them are affected differently and have not the same feelings in regard to each of them, but listen to some in a more mournful and restrained state, for instance the harmony called Mixolydian, and to others in a softer state of mind, for instance the relaxed harmonies, but in a midway state and with the greatest composure to another, as the Dorian alone of harmonies seems to act, while the Phrygian makes men enthusiastic...And the same holds true about rhythm also, for some have a more stable and others a more emotional character, and of the latter some are more vulgar in their emotional effects and some are more liberal. From these considerations therefore it is plain that music has the power of producing a certain effect on the moral character of the soul, and if it has the power to do this, it is clear that the young must be directed to music and must be educated in it. Also education in music is well adapted to the youthful nature; for the young owing to their youth cannot endure anything not sweetened by pleasure, and music is by nature a thing that has a pleasant sweetness. And we seem to have a certain affinity with harmonies and rhythms, owing to which wise men say either that the soul is a harmony or that it has a harmony. (p.19)

Between 622 and 633 A.D., Isidore of Seville (d.636 A.D.) compiled an encyclopedic treatise on the sciences and the arts in his Etymologiarium Sive Originum Libri XX. This treatise was an investigation into the origins of the technical terms associated with the sciences and the arts (Strunk, 1950).

With relevance to the effects of music on the human, Isidore believed that "music...composes distraught minds", and that..."every word we speak, every pulsation of our veins, is related by musical rhythms to the powers of harmony" (p.94).

An aesthetic link seems to have been established between the concepts held by both the ancient Greeks and Early Christians with relevance to the powerful effects of music on humans, and the notion put forth in the twentieth century by Hudson (1973), who concurred with Isidore, and indicated that music may serve as a physiologic language for the autistic child. Hudson (1973) made the suggestion that music may communicate at a more primitive level of rhythm, enhancing the possibility of a rapport which otherwise may not have been attained through conventional language. Physiologic language and language of the consciousness may become bridged through the mediation of music.

Carl Orff with Gunild Keetman, concurred with this concept of music as never being an entity unto itself, but rather a part of the rhythms and patterns of movement and speech. In the translation of his Music For Children (Hall & Walter, 1956) he referred to this music as "elementary music":

> *Elementary music is never alone, but forms a unity with movement, dance, and speech. It is music that one makes oneself, in which one takes part, not as a listener, but as a participant. (p.6)*

The interpretation of the "elementary music" was taken from its latin derivation, and explained as..."pertaining to the elements, primeval, [and] rudimentary"...(p.6) by Carl Orff.

Wheeler and Racbeck (1972) described Carl Orff's system as primarily concerning itself with the total growth of the child. They posited that:

> *Carl Orff's approach to music education for the child begins with the premise that feeling precedes intellectual understanding...so it is with music. Feeling precedes understanding. (p.19)*

Supportive Studies for Music Intervention with Autistic Individuals

Sherwin (1953) found that a disproportionately high percentage of autistic children are offspring of very intelligent, sophisticated parents. He concluded that: (a) the opportunity to listen to music and fine recordings may be greater in the environments of these children; and (b) music may be more appealing to a sample of autistic children, due to the fact that music is less specific than speech.

The frequency of the autistic child's unusual responses to music was explained by Despert (1947) as being related to two important variables: (a) the autistic child's seemingly exceptional acuity to sound, and (b) this obvious interest may be a secondary factor, based on the autistic child's preference for objects rather than people, who create words. Despert (1947) questioned whether this musical interest may be a part of the autistic child's total 'obsessive preoccupations' with sound, light, various objects and play.

Mahler (1952) made the following observation and conclusion:

> *...the autistic child is most intolerant of direct human contact. Hence, he must be lured out of his autistic shell with all kinds of devices such as music, rhythmic activities, and pleasurable stimulation of the sense organs. (p.302)*

Sherwin (1953) reported that music may be a possible intervention method especially for the purpose of making contact with autistic children. Sherwin (1953) added that music may even help to improve the condition of autism.

Benenzon (1981) agreed with this notion, by hypothesizing that music may therapeutically make contact with autistic children, and that proper therapeutic treatment may help to improve the communication skills of this group of special needs children.

With a consideration of the Greek-held belief-system relevant to the doctrine

of ethos and the importance of music in the education of the young, coupled with the beliefs of such researchers as Despert (1947), Mahler (1952), Sherwin (1953), Hudson (1973), and Benenzon (1981), one could reasonably assume that a music intervention method may prove to be effective in aiding the acquisition of communication skills (both verbal and non-verbal) and prosocial behaviour in autistic children.

Statement of Purpose

The purpose of this investigation was two-fold; namely, (a) to develop and pilot a music intervention programme, using Orff methodology; and (b) to evaluate the impact of the programme on autistic children's communication and socialization skills.

General Research Questions

The investigation attempted to answer two basic questions:

- Will this writer's music intervention programme generally be found to be an effective therapeutic method to facilitate the acquisition of communication and socialization skills with autistic children?
- Will this writer's music intervention programme have a differential effect on high-functioning, mid-range functioning, and low-functioning autistic children?

To address these two general questions, three specific research questions were posed. The data in the study were gathered to answer these three questions directly. Clinical judgement, rather than statistical tests served as the yardstick for evaluation.

Specific Research Questions

1. *Will there be clinically significant improvements in verbal and non-verbal communication with parents and Significant Others, as measured by Subtest One, {the Autism Behaviour Checklist (ABC)} of the Autism Screening Instrument for Educational Planning (ASIEP) (Krug, Arick & Almond, 1980)?*
2. *Will there be clinically significant improvements in the children's social interaction in the presence of an adult, as measured by Subtest Three (Interaction Assessment) of the ASIEP?*
3. *Will there be clinically significant improvements in the social interaction patterns of each child, as noted in the analysis of the recorded descriptive data?*

Defining Communication and Prosocial Behaviour

The concept of communication and socialization for this study was adopted from the Tinbergen and Tinbergen (1972) model of Social Behaviour in Children. Communication and socialization was observed as corresponding to points along a continuum. Socially negative behaviours included: (a) Stereotype behaviour; (b) No responses to auditoly input; (c) Moving away (decreasing proximity); (d) Turning away whole body; (e) Turning away head; (f) Gaze aversion; (g) Partial closing of the eyes; (h) Looking past the adults's eyes; and (i) Blank expression. Socially positive behaviours included: (a) Eye contact; (b) Slight curving up of comers of the mouth; (c) Half-smile; (d) Uninhibited smile; (e) Beaming smile; (f) Approach (increase proximity); (g) Friendly interaction; (h) Playful interaction; and (i) Playful interaction with touching.

The amount of time spent by the autistic child in the upper portion of the Tinbergen and Tinbergen (1972) scale, that is within the socially positive behaviours, was regarded as an indication of progress in prosocial behavioural skills.

The Models Incorporated within this Study

This study attempted to integrate elements of the Tinbergen and Tinbergen (1972) ethological model and the Mahler (1952) developmental model into a comprehensive Orff-based music therapy programme with autistic children.

The Mahler (1952, 1968) model has as its foundation the notion of establishing the "corrective symbiotic experience" during the therapeutic process with an autistic child. Mahler's belief was that by the child's re-experiencing the earlier stages of development, he or she may become enabled to attain a higher level of object relationships. Mahler (1952, 1968) also suggested that the therapist "lure" the child out of the autistic shell, with such things as rhythms, music, and other sources of pleasurable sensory stimulation.

The Tinbergen and Tinbergen (1972) Social Behaviour in Children scale is based on the assumption that there is a continuum relevant to the social and interpersonal lives of autistic and normal children. Tinbergen and Tinbergen (1972a; 1972b; Tinbergen 1974) suggested that autistic children have decreased tendencies to approach and increased tendencies to withdraw in social situations, and that they possess some capacity for interpersonal approaching behaviour. The alternate side of this suggestion was that all of the observable behavioural patterns seen in autistic children may also be seen, to a certain extent, in normal children.

The Social Behaviour in Children (Tinbergen & Tinbergen, 1972) scale contains the following behaviours plotted along the continuum, ranging from those behaviours perceived as socially negative through to socially positive:

SOCIALLY POSITIVE **SOCIALLY NEGATIVE**

Playful interaction with touching

Playful interaction

Friendly interaction

Approach (increase proximity)

Beaming Smile

Uninhibited smile

Half smile

Slight curving up of corners of mouth

Eye contact

Blank expression

Looking past the person's eyes

Partial closing of the eyes

Gaze aversion

Turning away head

Turning away whole body

Moving away (decrease proximity)

No response to auditory input

Stereotypes

By integrating both the ethological model of Tinbergen and Tinbergen and the developmental model of Mahler into the Orff-based programme, the present study sought to add more clinical information regarding the empirical findings of Kramer, Anderson, and Westman (1984).

Kramer et al. (1984) recommended the use of the Tinbergen (1972a; 1972b; Tinbergen, 1974) model of infantile autism as an adjunct to a comprehensive

treatment programme. The basis of the Kramer et al. (1984) technique was the combination of Tinbergen and Tinbergen's (1972a; 1972b; Tinbergen, 1974) ethological concepts and Mahler's (1952) developmentally-oriented psychoanalytic approach to autism. The emphasis of the Kramer et al. (1984) study was on a non-verbal therapeutic approach. These researchers used the Tinbergen ethological model with 10 autistic children over a period of five years, and found the method to be successful in terms of the development of the "corrective autistic experience" as measured by the amount of time spent by the autistic child in the upper part of the social behaviours continuum of the Tinbergen and Tinbergen (1972) Social Behaviour in Children Scale.

The "corrective autistic experience" was hypothesized by Kramer et al. (1984) to be a new level of therapeutic contact with the autistic child which predated developmentally Mahler's (1952) proposed "corrective symbiotic experience". The chief difference between the two concepts is that Kramer et al. (1984) recommended that the therapist await the child's gradual approaches; whereas, the Mahler (1952) approach advocates the therapist lure the child from his or her "autistic shell" by using rhythmic activities, music, and pleasurable sensory stimulation.

The recommendation of Kramer et al. (1984) was that this "corrective autistic experience"..."merits further clinical study"...(p.118).

Importance of the Study

There has been a paucity of published research findings related to the effectiveness of music therapy programmes, having as their base an Orff-Schulwerk methodology, in aiding the acquisition of communication and socialization skills with autistic children. The significant elements of the present study were two-fold. Firstly, it assessed the effectiveness of an Orff-Schulwerk based music therapy

programme in facilitating the acquisition of prosocial behaviour with autistic children 13 years after the most recently available corresponding report. Furthermore, this study sought to determine whether the developed Orff-based music programme enhanced the autistic child's ability to express personal desires and to understand, generally, the events in his or her environment. This writer's assumption is that once a child has a degree of understanding regarding personal life's events, he or she will experience less need to be afraid, thereby improving the chance to learn more about human interaction.

The Implications of this Research for Autistic Children

The question of self-sufficiency eventually must be faced by either the parents and family of the person diagnosed as autistic, or by the autistic individual him/herself. As autistic children mature, a lack of prosocial behaviour may pose a significant problem. Skilled autistic adolescents and adults are gradually becoming merged into the general work force, where social interaction capabilities are of major importance (Utah State Office of Education, 1984). A limited ability to interact appropriately with administrative personnel, co-workers, and customers could seriously hamper the life chances of an autistic person. However, having an individualized programme suited to meet the needs of autistic children, vis-à-vis the acquisition of communication and socialization skills, may play an active role in helping the autistic individual towards increased self-sufficiency in life. The inclusion of a music intervention programme, specifically designed to facilitate the development of communication and socialization skills, within the individualized educational programme of the autistic student may prove to be of worth not only to the autistic child, but also to his or her Significant Others.

Since one of the challenges confronting school systems today is to provide for the total education of the individual, the school system's approach to the individual must be in accordance to the needs of each student. Children diagnosed as autistic are increasingly being mainstreamed into regular classroom settings. Often, the times allocated for moderately to severely handicapped students to become included in the general curriculum are spent on unstructured social activities, such as art, music, recess, and lunch (Stainback & Stainback, 1982). Having difficulty to socially interact with classmates, coupled with exhibiting ritualistic behaviour, may create complicated situations not only for the autistic child, but also for fellow-classmates and the teacher.

The "right to an appropriate education" (Gilhool,1973) may have the effect of highlighting the need for developing educational strategies suited to the needs of autistic children. Gallagher and Wiegerink (1976) asserted that progress can be made in the designing of educational programmes for autistic children, provided that these programmes be based on the following premises:

1. Autistic children are educable.
2. Their unique learning characteristics are due to basic cognitive deficits in information-processing.
3. Such deficits can be compensated for, in part, by carefully structured educational programs with specified developmental learning sequences and enhanced reinforcing stimuli.
4. Structured education programs should begin early in life, with the parent or parent surrogate as the primary teacher.
5. Educational programs for these children are feasible and, in the long run, less costly than institutional care.

6. The provision of appropriate educational programs for these children is not a manifestation of public generosity but rather a reflection that these children, too, have a clear right to an appropriate education. (p.25)

The most significant value in the incorporation of Orff-Schulwerk within a music therapy programme is in its potential to "draw-out" the most severely autistic child to become interested, over a period of time, in a meaningful group experience (Hollander & Juhrs, 1974). Bitcon and Ponath (1972) posited that the social process within the Orff-Schulwerk framework demonstrates a particular selection of observable behaviours which may become identified and eventually shaped with each music therapy session.

Definition of Terms

For the purposes of this study, the following definitions were used:

1. **AUTISTIC CHILDREN:** Children already diagnosed as autistic whose condition was further confirmed through the administration of the Autistic Behaviour Checklist of the Autism Screening Instrument for Educational Planning (ASIEP).

2. **COMMUNICATION SKILLS:** Any verbal and/or non-verbal attempts to convey a thought, idea, and/or feeling.

3. **PROSOCIAL BEHAVIOUR:** Defined according to Tinbergen and Tinbergen's (1972) Social Behaviour in children scale, to include the following socially positive behaviours: (a) eye contact; (b) slight curving up of corners of the mouth; (c) half smile; (d) uninhibited smile; (e) beaming smile; (e) approach (increase proximity); (f) friendly interaction; (g) playful interaction; (h) playful interaction with touching.

4. **SIGNIFICANT OTHERS:** Any individual who has consistent contact with the autistic child.

5. **LOW-FUNCTIONING:** A level of functioning at which there is virtually no use of speech or eye contact as a means of communication.

6. **MID-RANGE FUNCTIONING:** A level of functioning associated with a fairly frequent use of some speech and/or eye contact as a means of communication.

7. **HIGH-FUNCTIONING:** A level of functioning associated with a frequent and fluent use of speech and eye contact as a means of communication.

Limitations of the Study

The present study is subject to the following limitations:

1. The possibility exists that there may be other confounding elements within the daily environments and backgrounds of each autistic child which may affect each child other than the specific elements being investigated and/or controlled.
2. The music therapy programme for this study had a duration of ten consecutive weeks, with one hourly group session per week, and one 30-minute individual session per week. The possibility exists that any increased amount of time spent with the child in this programme could result in a change in the intensity of the findings of this study.
3. Only children diagnosed as autistic, and living in the St. John's area were studied.
4. The sample consisted of a small number of subjects.

CHAPTER II

REVIEW OF RELATED LITERATURE

The purpose of the investigation was to determine the effectiveness of an Orff-based music intervention programme in facilitating the acquisition of communication (verbal and non-verbal) skills and prosocial behaviour in autistic children. Areas that are related to the problem and present a context within which to place the results of the study will be explored in this chapter. The first section is concerned with the definition and diagnostic criteria of early infantile autism. This is followed by a discussion pertaining to the assessment of individuals diagnosed as autistic. The last section considers the variety of treatments used with individuals diagnosed as autistic, ultimately exploring the literature regarding music therapy with autistic children, including an emphasis on Orff-based music intervention programmes for this special needs sector of the population.

A Brief History of the Definition of the Term "Autism"

In 1906 the term "autism" was first introduced to psychiatric literature by Eugene Bleuler, who had been studying the thought processes of patients diagnosed as having dementia praecox (which he later renamed "schizophrenia"). Ritvo (1976) explained that Bleuler used the term "autism" to..."describe the quality of his patients' psychotic ideation in which they referred everything in the world to themselves"...(p.3)

Leo Kanner (1943) provided careful and systematic observations on 11 children with a previously unrecognized syndrome, which he later called "autism". Kanner (1943) titled his original paper "Autistic Disturbances of Affective Contact". Some of the behavioural features he perceived as characteristic of these children were: (a) an inability to develop relationships with others; (b) a delay in the acquisition

of speech; (c) a noncommunicative use of speech once it has been developed; (d) pronominal reversal; (e) delayed echolalia; (f) repetitive stereotype play behaviours; (g) a lack of imagination; (h) an obsessive insistence on the maintenance of sameness; and (i) a normal physical appearance.

Kanner (1943) eventually coined the term "early infantile autism". Shortly thereafter, Bender (1947) used the term "childhood schizophrenia", indicating her assumption that this syndrome was the early stage of that adult disease. The aspect of mother-child pathology, as related to this particular syndrome, was addressed by Mahler's (1952) descriptive term "symbiotic psychosis". From the psychoanalytic perspective, Rank (1949) used the diagnostic descriptor: "atypical ego development" with reference to this particular syndrome. Goldfarb (1961) implemented an integrative approach vis-à-vis the etiology of the syndrome, by setting up a continuum ranging from childhood schizophrenia (organic type), to childhood schizophrenia (non-organic).

In summary, it appears that there have been many attempts to clarify the definition of the term "autism". Although different schools of thought have maintained some similar views concerning the definition of this syndrome, there still remains, to varying degrees, a divergence of agreement amongst professionals.

Diagnostic Criteria of Infantile Autism

The Diagnostic and Statistical Manual of Mental Disorders (DSM-III, 1980) lists the following features as being essential to the diagnosis of Infantile Autism: (a) a lack of responsiveness to others; (b) bizarre responses to various aspects of the environment (i.e., a resistance to change, a peculiar interest in animate and inanimate objects); (c) gross impairment in communication skills; (d) onset must be prior to 30 months; and (e) an absence of hallucinations and delusions as

observed in schizophrenia. Associated features of this developmental disorder may be: (a) disturbances of thinking, mood and behaviour; (b) underresponsiveness and overresponsiveness to sensory stimuli (i.e., sound, pain, light; (c) a lack of appreciation of dangers (i.e., moving vehicles and heights; (d) nervous habits (i.e., hair pulling, or biting parts of the body); and (e) stereotype behaviour (i.e., rocking of body, wiggling of fingers) (DSM - III, 1980).

Confusion and disagreement regarding the diagnosis of Infantile Autism is prevalent in the psychiatric field (Schopler, 1978). This confusion has often facilitated errors in sample selection, unnecessary frustration among researchers and clinicians, and misinterpretation of significant research findings (Schopler, 1978).

Three specific sources contribute to this confusion: (a) inexperience in clinical diagnosis; (b) the complexity of the concept of autism; (c) the variation of underlying reasons for which one group of autistic children may have been chosen for a particular research design, as compared to the next sample selection for another study related to autism (Schopler, 1978).

However, the literature is full of varying patterns of diagnostic criteria (Eisenberg & Kanner, 1956; Omitz & Ritvo, 1968; Rendle-Short, 1969; Schain & Yannet, 1969; Tinbergen & Tinbergen, 1972; Wing & Ricks, 1976) which have all endeavored to clarify the symptomatology relevant to autism.

Creak (1961) reported the results of a working party's efforts to formulate a list of diagnostic criteria which would differentiate the early childhood psychosis or schizophrenic syndrome of childhood from other childhood disorders. The nine criteria were:

1. Gross and sustained impairment of emotional relationships with people...
2. Apparent unawareness of his own personal identity to a degree inappropriate to his age...

3. Pathological preoccupation with particular objects or certain characteristics of them, without regard to their accepted functions.

4. Sustained resistance to change in the environment and a striving to maintain or restore sameness...

5. Abnormal perceptual experience (in the absence of discernible organic abnormality) is implied by excessive, diminished, or unpredictable response to sensory stimuli - for example, visual and auditory avoidance..., insensitivity to pain and temperature.

6. Acute, excessive, and seemingly illogical anxiety is a frequent phenomena...

7. Speech may have been lost or never acquired, or may have failed to develop beyond a level appropriate to an earlier stage. There may be confusion of personal pronouns, echolalia, or other mannerisms of use and diction. Though words or phrases may be uttered, they may convey no sense of ordinary communication.

8. A distortion of motility patterns--for example (a) excess as in hyperkinesis, (b) immobility as in katatonia, (c) bizarre postures, or ritualistic mannerisms, such as rocking and spinning (themselves or objects).

9. A background of serious retardation in which islets of normal, near normal, or exceptional intellectual function or skill may appear. (p.890)

Rutter (1966) and Rutter and Lockyer (1967) made systematic comparisons between autistic children and children of corresponding age, sex, and general intelligence level with other psychiatric disorders. The results of their observations revealed three symptoms present in all autistic children, and seen less frequently in children from the control group: (a) a profound and general failure to develop social relationships; (b) language retardation with echolalia, pronoun reversals, and impaired comprehension; and (c) compulsive or ritualistic behaviours. Four other symptoms were noted by Rutter (1966) and Rutter & Lockyer (1967) which, although frequently observed in the autistic group of children, were not evident in each autistic child: (a) stereotyped, repetitive movements (typically, finger and hand mannerisms); (b) self-injury; (c) short attention span; and (d) delayed bowel control. The diagnostic criteria specified by Rutter (1966) and Rutter and Lockyer

(1967) closely resemble those outlined in the Diagnostic and Statistical Manual for Mental Disorders (DSM-III, 1980).

Popper (1972) suggested that there is no point in beginning with the term "autism" and then defining it; rather, ask oneself to which set of phenomena should the term "autism" be applied.

Rutter, Schaffer, and Shepherd (1975) suggest that much confusion in the diagnosis of autism could be avoided if mental health professionals were to use a multi-axial approach, in which the behavioural syndrome, the medical conditions, the intellectual levels, and the psycho-social situation may be coded on separate axes.

Rutter (1978) posited that Kanner's (1943) use of the term "autism" was not only a label, but also a hypothesis that underneath the behavioural description lay a specific syndrome. Rutter (1978) concluded that, if this were true, then children diagnosed as possessing behaviours which Kanner (1943) had designated as belonging to the category of autism would have a validity; in that children with this group of behaviours would differ from children with other psychiatric disorders in some significant sense.

Therefore, it is fundamentally important to obtain a means of testing the validity of the proposed behavioural grouping, and of modifying the diagnostic criteria, as have been indicated by significant research findings with a high test-retest reliability (Rutter, 1978).

Views on the Etiology of Autism

Kanner (1943) initially suggested genetic predisposition as a contributing etiological factor of autism, adding that the interaction between the specific family environments and the innate deficits may result in infantile autism.

Parental pathological traits (i.e., obsessiveness, emotional coldness, intellectuality, introversion, and schizophrenic characteristics) were emphasized by Ounsted (1970) and van Krevelen (1963; 1971). Pathological parent-child interaction was also attributed as a causative factor in infantile autism, specifically, either as a result of (a) a lack in maternal communication (Goldfarb, Goldfarb, & Scholl, 1966); (b) a lack in adequate stimulation (Anthony, 1958; Tinbergen & Tinbergen, 1972; Ward, 1970; Zaslow & Berger, 1969); or (c) earlier parental separation or rejection (Bettelheim, 1967; Despert, 1951).

Empirical research to date has not been successful in supporting the parental-cause assumption of autism (DeMyer, Pontius, Norton, Barton, Allan, & Steele, 1972; Koegel, Schreibman, O'Neill, & Burke, 1983; McAdoo & DeMyer, 1978; and Schopler & Loftin, 1969). The single conclusive statement pertinent to the emotional status of parents has been that the severe emotional stress connected with being a parent of an autistic child can precipitate emotional difficulties for these parents (Schopler, 1971).

The paucity of support for the psychogenic causation hypotheses combined with the accumulating evidence that infantile autism is a developmental disorder, led to studies designed to examine the neurological correlates of this syndrome (Mesibov & Dawson, 1986). Hutt, Hutt, Lee and Ounsted (1964) and Rimland (1964) investigated the possibility of problems with the reticular system of an autistic child. Hutt et al. (1964) proposed that the high arousal level of autistic children, as evidenced in their investigation, could pose a chronic problem for the autistic child. The suggestion was that the autistic child may engage in ritualistic and/or stereotype behaviour as a defense against overstimulation from the environment. However, subsequent investigations comparing the EEG and overt behaviours between autistic children with comparable control groups did not support the Hutt et al.

(1964) hypothesis (Churchill, 1971; Hermelin & O'Connor, 1968; Ornitz, Brown, Sorosky, Ritvo, & Dietrich, 1970).

Perceptual inconstancy was examined by Ornitz and Ritvo (1968). This suggestion relates to the autistic child's possible inability to regulate sensory input, thereby hampering the establishment of a meaningful, external reality. One weakness of this theory is that the concept of "perceptual inconstancy" and its effects on development have not been clearly defined; nor does the theory account for the underlying reason why many autistic children are relatively unimpaired in other perceptual areas (i.e., visual-motor skills) (Mesibov & Dawson, 1986).

Boucher and Warrington (1976) and DeLong (1978) posited that autism may be similar to the syndrome of amnesia, resulting from a lesion in the limbic system. Although the initial investigation with animals was supportive of this notion; studies with children have not significantly supported the hypothesis (Boucher & Warrington, 1976).

Recent research into the etiology of autism has focused on biogenic factors: (a) difficulties during pregnancy and/or birth; (b) genetic factors; and (c) biochemical and medical studies.

Knoblock and Pasamanick (1975) and Ornitz and Ritvo (1976) found an increase in the incidence of birth complications, (i.e., severe maternal illness; Rh incompatibilities; toxemia; vaginal bleeding; and difficult labours) as compared with control groups. Links, Stockwell, Abichandani, and Simeon (1980) concluded that empirical findings related to the biogenic causation of autism are most suggestive of prenatal factors, as compared with abnormalities of birth and the neonatal period. Gillberg (1980) posited that with increasing maternal and paternal age, the risk of infantile autism increases.

Kanner's (1943) suggestion that genetic factors may contribute to the etiology of autism was set aside while researchers investigated psychogenic theories of causation. However, recent studies have been focusing on genetic factors as related to autism. Bartak, Rutter, and Cox (1975) found a family history of speech delay in approximately 25 percent of their sample of autistic children. Folstein and Rutter's (1977) sample of 21 same sex twins, yielded at least one twin in each pair who was diagnosed as autistic. Other findings from the Folstein and Rutter (1977) twin-study were: (a) four of the 11 monozygotic (MZ) pairs were concordant for autism; (b) none of the dizygotic (DZ) pairs were concordant for autism; (c) six nonautistic co-twins (one DZ and five MZ) indicated a cognitive abnormality in the areas of severe speech delay, learning disability, or mental retardation; and (d) in 12 of the 17 sets of twins discordant for autism, available evidence indicated that the autistic member had suffered some form of brain injury; whereas in none of the discordant pairs was this occurrence only experienced by the nonautistic member.

Ritvo (1981) found a corresponding proportion of monozygotic (MZ) twins concordant for autism as was reported in the Folstein and Rutter (1977) twin-study. Families with autistic children were found to have a high incidence of learning disabilities and other developmental problems (Ritvo, 1981). The suggestion that the transmission of autism is multi-factorial was put forth by Tsai, Stewart, and August (1981), contingent upon their analysis of data which had supported a genetic etiological hypothesis.

Biochemical studies have seemed to center on the blood levels of indoleamine serotonin. Schain and Freedman (1961) did not find a relationship between elevated serotonin levels and the behavioural characteristics of autism in their sample of 23 autistic children. Ritvo, Yuwiler, Geller, Kales, Rashkis, Schicor, Plotkin,

Axelrod, and Howard (1971) concluded that the blood serotonin levels seem to be an age-related phenomena; serotonin levels decrease with age, which may be indicative of a maturational basis for the increased serotonin levels in autism. Campbell, Small, Collins, Friedman, David, and Genieser's (1976) empirical results have indicated that elevated serotonin levels are most evidently associated with low intellectual functioning. Although the administration of L-Dopa lowers blood serotonin levels, the L-Dopa does not seem to produce behavioural changes in autistic children (Campbell et al., 1976).

Other biochemical leads were pertaining to the relationship of autism with dopaminergic overactivity, and to the reciprocal relationship between dopaminergic and serotonergic functioning (Cohen, Johnson, & Bowers, 1974; Cohen, Caparulo, Shaywitz, & Bowers, 1977; Cohen, Caparulo, & Shaywitz, 1978); and the reported zinc deficiencies in children diagnosed as autistic (Coleman, 1978).

Medical studies have been investigating the possibility of a viral causation for autism. Chess (1971) reported the frequent associated occurrence of autism with a viral infection within the central nervous system. Peterson and Torrey (1976) have also supported the viral cause of autism hypothesis. Perhaps owing to the small sample size used in their study, Stubbs and Magenis (1980) were unable to confirm this hypothesis. Further research is needed to examine this proposal of a viral causal agent for autism.

Presently, autism has not been definitely linked with any biochemical or medical causative agent. The difficulties connected with the definition of the syndrome, coupled with the variances of adopted diagnostic criteria; inadequate control groups; and the typically small sample size; may all contribute to the lack of definitive information pertinent to the possible biochemical and/or medical etiology of autism (Mesibov & Dawson, 1986).

The Assessment of Individuals Diagnosed as Autistic

While the debates over the various operational definitions and pertinent diagnostic criteria relevant to the autistic condition persist, the need to assess the autistic child remains a reality. Schopler (1983) made the observation that as clinical research has developed over the years, the original definition of autism has become expanded. According to the behavioural symptomatology of the early childhood syndrome, the prevalence of autism is approximately 2 - 4 children per 10,000 population (DSM-III, 1980). However, Rimland (1964) concluded that only 10 of every 100 children described as belonging to this diagnostic category are, in reality, autistic.

Autism may co-exist with mental retardation (Jacobson & Janicki, 1983; Rutter, 1978), and various neurological impairments (Blackstock, 1978; Tanguay & Edwards, 1982). Since in the mid-1970's autism was accepted as a developmental rather than an emotional disorder (DeMyer, 1979; Paluszny, 1979; Schopler, Rutter, & Chess, 1979), therapeutic approaches began to stress the need for specialized educational programmes for autistic children. The proliferation of educational strategies and interventions was an attempt to address the specific academic needs of this special population (Donnellan-Walsh, Gossage, LaVigna, Schuler & Taphagen, 1976; Lansing & Schopler, 1976).

An assessment of the developmental functioning level of an autistic child would seem to be an appropriate prerequisite event towards the development of a potentially effective individualized educational programme. The following conclusions have been drawn from empirical research findings (Alpern, 1967; Flaherty, 1976; Freeman, 1976; Freeman & Ritvo, 1976; Schopler & Reichler, 1971a):

1. The usage of standardized instruments in a clinically-sensitive procedure can effectively be used to test autistic children.
2. The results from such testing procedures can be both useful and reliable in terms of facilitating the teacher's understanding of the possible expectation level for the autistic child, and also may aid in defining the adaptation requirements of the classroom situation, in order to meet the autistic child's needs.

In an effort to assure the autistic child of an appropriate educational placement, several assessment measures have been designed specifically for this population of exceptional children (Freeman, Ritvo, Guthrie, Schroth, & Ball, 1978; Krug, Arick, & Almond, 1980; Makita & Umezu, 1973; Rimland, 1964, 1971; Ruttenberg, Dratman, Fraknoi, & Wenar, 1966; Schopler, Reichler, DeVellis, & Daly, 1980; Wing & Gould, 1978).

Assessments are essentially in two categories: (a) to assess for the purpose of diagnosis and classification; and (b) to assess for therapeutic intervention and educational planning. Diagnostic instruments include:

1. Behavioural observational scales (Freeman, Ritvo, Guthrie, Schroth, & Ball, 1978; Krug, Arick, & Almond, 1980; Schopler, Reichler, DeVellis, & Daly, 1980; Wing & Gould, 1978).
2. Parent Questionnaires (Ornitz, Guthrie, & Farley, 1977; Rimland, 1971; Wing, 1969).

Assessment for therapeutic intervention purposes may define specific target behaviours of the autistic child (Koegel, Rincover, & Egel, 1982); yield standardized measures of performance (Krug, Arick, & Almond, 1980); and ascertain the developmental levels of educational functioning (Schopler & Reichler, 1979).

Charlop, Schreibman, Mason, and Vesey (1983) proposed that the sociological aspects in the assessment of autistic children are of significant value. Limited abilities to generalize impose the necessity to specify settings and their interactions with the behavioural patterns of autistic children (Charlop et al., 1983).

In summary, several different types of instruments which have been developed for assessing autistic children have been presented. In each of these two common elements were evident: (a) the assessment of autistic children is possible, using a clinically-sensitive procedure; and (b) the results of these assessments may facilitate the potential efficiency of any planned intervention programme for autistic children.

The Treatments Used with Individuals Diagnosed as Autistic

Treatments used with individuals diagnosed as autistic may be listed according to categories as follows: (a) Behavioural; (b) Psychoanalytic; (c) Pharmacological; (d) Family Systems Approach; (e) Multi-Disciplinary Approach; (f) Holding Therapy; and (g) Music Therapy.

Most of the current treatment programmes are more directed at the outward symptoms of autism, since these external manifestations of the syndrome are observable and well-known (Humphreys, 1987).

The following section of this review describes the treatments used with children diagnosed as autistic.

a. Behavioural therapy in the treatment of infantile autism

Ferster (1961) made the initial attempt to comprehend the behavioural patterns of autistic children within a behavioural framework. Ferster (1961) raised the argument that, based on the general deficiency of acquired reinforcers, one may expect the behavioural development as observed in autistic children.

The Ferster and DeMyer (1962) studies were the first to indicate that the autistic behaviour patterns could be related in a lawful manner to specific environmental events.

The Hewett (1965) and Lovaas, Berberich, Perloff, and Schaeffer (1966a) studies indicated success in aiding the acquisition of certain basic and important repertoires, particularly within the domains of language and imitation. These results contrasted sharply with the previously reported failures of psychodynamic therapies to effect change in the behavioural patterns of autistic children (Kanner & Eisenberg, 1955).

The Lovaas, Koegel, Simmons, and Long (1973) study of generalization and follow-up measures used in behavioural therapy with 20 autistic children evaluated the treatment along three dimensions: (a) stimulus generalization; (b) response generalization; and (c) durability, or follow-up (i.e., the degree with which effects were maintained over a period of 1 - 4 years after treatment.

The treatment procedure in the Lovaas et al. (1973) study was directed towards building behaviours depending upon already effective primary reinforcers (Lovaas, Freitag, Kinder, Rubenstein, Schaeffer, & Simmons, 1966b) such as food, and essentially avoiding social stimuli. Although there were obvious disadvantages attached to the use of primary reinforcers (i.e., special environments must be designed to develop and maintain new behaviour), the assessment of how much may be acquired by using a limited range of reinforcers was a focal issue in this study (Lovaas et al., 1973).

The importance of the suppression of self-stimulatory behaviour was derived from the findings of the Lovaas, Littrownik, and Mann (1971) study which had as its thrust the investigation of response latencies to auditory stimuli in autistic children while engaging in self-stimulatory behaviour. Lovaas et al. (1971) found

that while an autistic child is engaging in self-stimulation, the task of teaching the same child became more complex.

The simple behaviours of looking at the therapist, or sitting on a chair upon request were successfully conditioned by the therapist in the Lovaas et al. (1973) study. Since initial attempts to attain these simple behaviours were met with tantrums and/or self-destructive behaviours, the suppression of undesirable behaviours was coupled with an attempt to establish a primitive stimulus control (Lovaas et al., 1973).

Language acquisition consumed approximately 80 percent of the autistic child's total training. Verbal imitation was established at five stages: (a) the child received reinforcement for vocalizing as a means to increase the frequency of speech sounds; (b) temporal discrimination was established (i.e., the child's responses were put upon a fixed interval schedule, whereupon he or she would only receive reinforcement for those vocal responses which were emitted within a 5-second interval after the therapist had made the vocalization; (c) a demand for similar vocalizations between the therapist and the child; (d) upon successful emission of one vocalization, the therapist immediately introduced a second sound, and reinforced imitations of that sound; and (e) a third sound was introduced by the therapist, requiring a finer discrimination than previously experienced by the child; any imitations of which were reinforced by the therapist (Lovaas et al., 1973).

The emphases in the Lovaas et al. (1973) study were: (a) to help the autistic child appear as normal as possible; (b) to reward the autistic child for normal behaviour, and to punish any undesirable behaviour; (c) to teach the autistic child to please his or her parents and therapists; and to be grateful for all that was being achieved in the treatments; (d) to condition the autistic child to be afraid if parents and therapists were angry; and (e) to condition the autistic child to be

contented if parents and therapists were happy. The rationale given vis-à-vis the selected goals of this study was that, in the face of living with psychotic children, these goals potentiated the concepts of security and comfort for those people directly concerned.

A summary of the major results of the Lovaas et al. (1973) study were: (a) self-stimulation and echolalia (i.e., the usage of speech in an unmeaningful or inappropriate manner) decreased during treatment; whereas, appropriate play, and social non-verbal behaviours increased; (b) at about eight months into treatment, spontaneous use of language and social interactions were exhibited by the autistic children; (c) IQs and Social Quotients reflected improvement during treatment; (d) although some autistic children improved more than others, there were no exceptions to the improvement; (e) a recording of follow-up measures over a time period of 1 - 4 years after treatment indicated that the discrepancy of behaviours between groups of autistic children were directly related to the post-treatment environment (i.e., those groups whose parents trained to carry out behavioural therapy continued to show improvement, whereas institutionalized children regressed); (f) upon a brief reinstatement of behavioural therapy, institutionalized autistic children temporarily regained some of their original behavioural progress; (g) the technique used in the recording of therapeutic change during the course of this study was proved to be reliable (Lovaas et al., 1973).

Several other studies concur with the Lovaas et al. (1973) findings with reference to the inverse proportional relationship of self-stimulation to learning in autistic children (Atkinson, Jenson, Rovner, Cameron, Wagenen, & Petersen, 1984; Koegel & Covert, 1972; Phillips, Fischer, & Singh, 1977). Pragmatically, research findings indicate that successful teaching of a new behaviour to an autistic child

is dependent upon previously suppressing self-stimulatory behaviour (Koegel & Covert, 1972; Lovaas & Schreibman, 1971).

Two recent studies on the self-stimulation of autistic children further develop the concept of operant conditioning as a therapeutic strategy in the treatment of autism (Epstein, Taubman, & Lovaas, 1985; Wolery, Kirk, & Gast, 1985). The Epstein et al. (1985) findings indicated those children who changed from "low-level" motor activities (i.e., rocking, twirling, spinning) to "highest-level" behaviours (i.e., lining of objects, a preoccupation with spelling and numerical values, and echolalic speech) showed the most significant progress in treatment (as determined by IQ scores, and school placement).

Wolery et al. (1985) experimented with the use of stereotype behaviour as a reinforcer for autistic children. Three conclusions were drawn from the Wolery et al. (1985) study: (a) findings supported earlier research which had proposed that stereotype behaviour has reinforcement value, and can be used as a reinforcer (Hung, 1978; Rincover, Cook, Peoples, & Packard, 1979); (b) a new method of delivering stereotype behaviour was tested, which involved the experimenter's cue to the subject to engage in stereotype behaviour contingent upon correct responses. Although this method was effective, it may pose some difficulties for teachers to identify and repeat the sensory stimulation that is reinforcing for individual subjects; (c) side-effects related to the use of stereotype behaviours as reinforcers have not been adequately investigated; if such were to result in increasing the rate of stereotype behaviours in other environmental settings, then serious ethical considerations would exist (Wolery et al., 1985).

Severe behavioural problems, including self-injury and aggression, have prompted clinicians to incorporate effective control techniques within behavioural management programmes. The withdrawal of attention was demonstrated as effective in the

modification of mildly disruptive behaviour (Risley & Wolf, 1965) and self-injury (Lovaas & Simmons, 1969).

Some drawbacks have been demonstrated as being associated with the implementation of the time-out procedure with autistic children: (a) the time-out must be more negative than the task the autistic child has been requested to complete, (hypothetically, the child may engage in a more gratifying self-stimulation during the time-out period, as compared to the required task completion) (Solnick, Rincover, & Peterson, 1977); (b) the time-out has been found to be an ineffective technique in controlling potentially dangerous behaviours (Lovaas, Schaeffer, & Simmons, 1965; Risley, 1968; Tate & Baroof, 1966).

In the cases of potentially life-threatening behaviours, clinicians have implemented the aversive technique of electric shock treatment with the autistic child (Lovaas, Schaeffer, & Simmons, 1965; Risley, 1968; Tate & Baroof, 1966). These clinicians have emphasized: (a) the electric shock treatment should only be used with extremely dangerous behaviour requiring immediate suppression; and (b) the electric shock treatment should only be used in cases where less intrusive modifying techniques have proved ineffective. Lovaas and Newsom (1976) observed that, aside from the obvious moral issues involved with the use of shock therapy, the electric shock eliminates only certain behaviours. They recommended the combination of the electric shock therapy with a more positive technique, so as to facilitate the acquisition of positive behaviours within the autistic child (Lovaas & Newsom, 1976).

Maurer (1983) discussed the controversy over the use of electric shock rods with autistic children. To date, psychologists are unresolved in the debates between two incompatible schools of thought: i.e., those in favour, and those

opposed to the implementation of electric shock therapy with autistic children (Maurer, 1983).

Overcorrection is another aversive technique used to suppress the aggression and self-injurious behaviour of autistic children (Foxx & Azrin, 1973). Restitution and positive practice are two forms of the overcorrection technique.

Mesibov (1983) reported more recent efforts pertaining to aggression and self-injurious behaviour management with autistic children as being easier to implement, and, ultimately, more humane.

The Bubble Helmet was introduced as being a protective device used in treating severe cases of self-biting behaviour in autistic children (Neufeld & Fantuzzo, 1984). The apparatus is a clear plastic sphere which fastens over the patient's head, and protects the forearms and hands from contact with the mouth. Use of this device in a response-contingent programme effectively eliminated the intense self-biting behaviour of a 9-year-old autistic girl in a community-based home (Neufeld & Fantuzzo, 1984).

Kinnell (1984) described the use of a straightjacket with a 14-year-old autistic girl, who engaged in severe, chronic head-banging. Although some relief was obtained by the restraint harnesses; withdrawal of the strait-jacket resulted in extreme self-injurious behaviour (Kinnell, 1984).

Preator, Jenson, Petersen, and Ashcraft (1984) used a combination of positive practice overcorrection and alternative response training in the reduction treatment programme of a 6-year-old autistic boy's inappropriate touching. The results of the combined treatment seemed to indicate a greater reduction of the touching behaviour than was initially exhibited during the overcorrection treatment period (Preator et al., 1984).

Jenson, Rovner, Cameron, Petersen, and Kesler (1985) examined the use of a fine water mist in combination with a loud statement of "No" following self-injurious behaviours of a 6-year-old autistic girl. Verbal praise was given following any appropriate behaviours exhibited by this autistic child. A fading technique was implemented by gradually moving from large to small bottles of water, in order to allow for generalization across settings (Jenson et al., 1985). Results reported by Jenson et al. (1985) indicate that this treatment was found to be effective at a 6-month follow-up in both unstructured and structured settings.

Restricted Environmental Stimulation Therapy (REST) was found to have a significant positive effect on the discrimination learning of 8 autistic children (Suedfeld & Schwartz, 1983). Positive changes in cognitive functioning, socialization, and play behaviour were also reported (Suedfeld & Schwartz, 1983).

Another less-aversive and potentially useful behavioural approach with autistic children is Rincover's (1978) sensory extinction technique, which is based on the notion that self-stimulation is maintained due to its sensory consequences. Rincover (1978) recommended sensory extinction as an efficient technique in terms of decreasing inappropriate behaviours, and generating potent reinforcers for more acceptable behaviours.

Aiken and Salzburg (1984) reported the substantial reduction of stereotype vocalizations of 2 autistic males, both aged 9-years and 11-months, through the implementation of a sensory extinction procedure. However, this procedure seemed to have little effect on the clapping and object responses of the autistic children (Aiken & Salzburg, 1984).

In summary, over the past 15 years some significant advances have been made with individuals diagnosed as being autistic by the implementation of

behaviouristic techniques. In this writer's music intervention programme, an attempt was made to implement humane, less-aversive behaviouristic techniques.

b. Psychoanalytically-oriented therapies in the treatment of infantile autism

The chief advocate of the psychodynamic approach to therapy with autistic children was Bettelheim (1974). Suggesting that cold, hostile parents were the main causation factor of autism, Bettelheim (1967) recommended what Schopler (1971) later termed as a "parentectomy"; i.e., a total removal of the autistic child from the biological parents and the home-setting, to a placement within a residential-setting with parent surrogates.

Since parental pathological assumptions have not been supported within the literature, and have been replaced by the non-specific brain abnormalities hypotheses (DeMyer, 1975; Ross, 1980; Rutter & Schopler, 1978); Psychoanalytically-oriented treatments are not used, generally, by clinicians currently working with autistic children (Mesibov & Dawson,1986).

Despite the general trend to choose treatments other than psychoanalytically-oriented with autistic children (Mesibov & Dawson, 1986), some recent studies have endeavored to use psychotherapy with this group of exceptional children (Alvarez, 1985; Anzieu, 1985; Diatkine, 1985; Fonseca, 1984; Haag, 1985; Tustin, 1984).

Based on her research on childhood autism and her intensive work with autistic children, Tustin (1984) described her eventual understanding of childhood autism by emphasizing the tactile sensation-dominated nature of their world. She explained the nature of her hypothesis pertinent to "autistic objects" (described by Fordham (1976) as "self-objects") and "autistic shapes", (which Tustin (1984) also termed "tactile hallucinations"). She posited that "autistic objects" and "autistic shapes" have been obstacles to the development of the autistic child's: (a) emotional and

cognitive functioning; (b) sense of personal identity; and (c) relationships with other individuals.

Tustin (1984) commented on the critical importance of the use of touch with autistic children:

> *...the autistic child feels empty and "objectless". The hard tactile sensations on body surfaces of "autistic objects", and the soft "touch" sensations of "autistic shapes", dominates his life. For these children "touch" is magical. Only what is tangible seems real to them. The autistic child is trapped in ...."a dead-end street". But it is a "dead-end street" with primeval horrors lurking in the shadows. (p.145)*

Furthermore, Tustin (1984) hypothesized that autistic terrors have spoiled the mother-child relationship, and that insightful intervention may relieve this separation, by taking into account the relevance of "autistic objects" vis-à-vis the autistic child's pathology. Tustin (1984) suggested that "autistic objects" and "autistic shapes" have been a defense against the threat to the survival of the child. The vestigial horrors, to which the autistic child has become abnormally exposed, have (a) posed the threat to the child, and (b) succeeded in damaging the mother-child relationship. The mother, who is not as readily available to her child as the "autistic objects" and "autistic shapes", is then perceived by her autistic child as being very unsatisfactory (Tustin, 1984).

Fonseca (1984) reported working with a 6-year-old psychotic boy, who demonstrated repetitive autistic behaviour. She postulated that the stereotype behaviour was: (a) a defense against separation; (b) a vehicle by which to control the therapist; and (c) the absence of the continent self, resulting in a sense of emptiness.

Based on case studies of 2 children, an analysis of the particular difficulties encountered by psychotherapists in the treatment of infantile autism was prepared by Diatkine (1985). Special emphasis was with regard to the harmful effects of the

psychotherapist's verbalization pertinent to the interpretation of the autistic child's behaviour (Diatkine,1985).

Anzieu (1985) discussed the psychotherapeutic process relevant to the preference of some inhibited children to draw rather than to talk to the therapist. The observation was made that prior to talking with the therapist, the child may initially play, and then begin to draw. Anzieu (1985) analyzed the passage from drawing to talking in child psychotherapy, and recommended the use of drawing with autistic children as a potential facilitator towards speech.

The relationship between the mother and the baby within the two halves of the body (i.e., the maternal or parental functions half, and the baby functions half) was examined by Haag (1985). Hand-playing, self-holding, and "self-prehension" are suggested by Haag (1985) as being observable pertinent behaviours of the baby. The symbolism of the hand-mother and the hand-baby is perceived as being indicative of a pathology which confirms the nonintegration or disintegration of this level, relevant to the specific fantasy of the vertical splitting of the image of the body (Haag, 1985). Haag (1985) hypothesized that this phenomenon is potentially one of the most important modalities of the interiorization of the primitive links.

Alvarez (1985) postulated that psychoanalytic therapy with psychotic and borderline children critically tests the notion of analytic neutrality; particularly if the neutrality is envisaged in too passive, static, or containing a manner. Alvarez (1985) advocated a neutrality used as a frame of reference by the therapist, or as a balanced stance stabilized by continuous compensatory adjustments. The suggestion was that, in the attainment of a sufficient distance from the patient in order to think, yet simultaneously remaining close enough to stay in contact, a balance is achieved (Alvarez, 1985). In describing three compensatory mechanisms (i.e.,

Fortified Neutrality; "Diplomatic Missions"; and "Advanced Listening Posts") used with autistic or schizoid, psychopathic, borderline and improving psychotic children, Alvarez (1985) concluded that a thoughtful neutrality enhanced by the sensitivity, emotions, and perceptions of the psychotherapist, must be worked for and earned with borderline and psychotic children.

In summary, some clinicians from the psychodynamically-oriented school of thought seem to hold to the view that infantile autism is an emotional disorder requiring intensive psychotherapy. However, since there is a paucity of evidence in the literature pertinent to the psychological etiology of autism; there is little reason to believe that psychodynamically-oriented interventions would be effective.

Nevertheless, the Tustin (1984) argument emphasizing the importance of tactile information to the autistic child was incorporated within this writer's music intervention programme. Specifically, each child was directed to a musical instrument, and guided physically as to the "making instrumental music" procedure. This direct physical guidance was gradually faded in order to foster the child's realization of any personal expression and success. Additionally, at the conclusion of each music session, the children received back-pats while listening to calm music; namely, the Pachelbel Canon. Since no separate test studies were conducted by this writer to establish the combined effect of the Pachelbel Canon and the back-pats for each autistic child, the teachers were required to constantly gauge the impact of this intervention. Should the tactile information in combination with the Pachelbel Canon be perceived to be adversive rather than reinforcing for the child, it would be discontinued.

c. Pharmacological therapies in the treatment of infantile autism

According to DeyKin and MacMahon (1979), anticonvulsants have been used with autistic individuals in a similar manner as for the general population.

Campbell, Fish, David, Shapiro, Collins, and Koh (1972) reported that, despite the generally accepted clinical proposal that amphetamines may help to alleviate the hyperactivity which often accompanies autism; the main published accounts pertinent to autistic children indicate a worsening of behaviour when treated with these drugs.

Dalldorf and Schopler (1981) suggested that, although phenothiazines and haloperidol have been found to be helpful in reducing the self-injurious behaviours and severe aggression of autistic children, the effects of these drugs are unpredictable. Schiele, Gallant, Simpson, Gardner, and Cole (1973) cautioned that the administration of phenothiazines and haloperidol may not only increase learning deficits in autistic children, but also cause such side effects as reduced seizure threshold, tardive dyskinesia, and excessive weight gain.

Despite the lack of demonstrated empirical findings pertinent to the effectiveness of megavitamin therapy with autistic children (Greenbaum, 1970); there have been favorable reports of biological interventions with individual children which have implemented the administration of megavitamins (Rimland, 1973).

Mesibov and Dawson (1986) suggested that although megavitamin therapy may not benefit all autistic children, it may be beneficial to some. The realistic differentiation between the effects of psychoactive drugs and megavitamin therapy with autistic children, may be the greater number of side effects perceived as being linked with the administration of the psychoactive drugs; thereby making the choice of megavitamin therapy more preferable with autistic children (Mesibov & Dawson, 1986).

Geller, Ritvo, Freeman, and Yuwiler (1982) administered fenfluramine to 3 autistic children: a 3-years and 7-months old boy, and male twins who were 5-years and 4-months old. Each of the children had high blood serotonin levels, and extensive autistic behavioural features. Preliminary observations seemed to indicate that the effects of the fenfluramine administration ameliorated the symptomatology of the autism syndrome in these 3 boys.

Lithium has recently been administered to autistic children who have not been responsive to other pharmacological treatments, and who have been exhibiting self-injurious or severe aggressive behaviours (Mesibov & Dawson, 1986). Campbell et al. (1972) found that lithium seemed to produce a relatively insignificant improvement within a sample of preschoolers, with the exception of one autistic child whose self-mutilation behaviour was diminished "dramatically".

Martineau, Barthelemy, and Lelord (1986) reported the case of a 4-year-old autistic boy who was administered 30 mg/kg/day of pyridoxin HCL (Vitamin B-Sub-6) and 15 mg/kg/day of magnesium lactate for a period of 8 months. The results indicated: (a) a decrease in autistic symptoms; (b) an improvement in evoked potential conditioning; and (c) an increase in homovanillic levels (Martineau et al., 1986).

In summary, although pharmacotherapy may be less effective with the autistic population due, in part, to the autistic condition (i.e., unpredictable and idiosyncratic responses); with reasonable administration coupled with careful monitoring, biological interventions may prove to be an important adjunct to other therapies with autistic children (Mesibov & Dawson, 1986).

d. The family treatment approach to autism

Empirical evidence has demonstrated that parents are good judges of the current development of their autistic children (Schopler & Reichler, 1971). Koegel, Schreibman, Britten, Burke, and O'Neill (1981) reported that training mothers as teachers or co-therapists of their own children is superior to the direct instruction of the autistic child. Marcus, Lansing, Andrews, and Schopler (1978) found that parental training decreases bizarre and inappropriate child behaviours, and increases appropriate behaviours. Generalization of treatment across settings and maintenance of gains over time seem to be facilitated by the enlisting of parents as teachers and/or co-therapists of their autistic children (Koegel et al., 1981; Lovaas, Koegel, Simmons, & Long, 1973).

Some of the parental training programmes have recognized the necessity not only of changing the autistic child's behaviour, but also facilitating the family system's adaptation to the child (i.e., helping to establish a network of community and familial support; and obtaining necessary related services for the family) (Bristol & Gallagher, 1982; Schopler, Mesibov, Shigley, & Bashford; 1984). The basic assumption of such an approach is that the family system is the appropriate client for intervention (Bristol, 1985). According to Schopler and Bristol (1980), the family system's intervention approach should respect the level of programme involvement chosen by the parent, so as to aid in maintaining a semblance of family normalcy.

The life-span perspective is based on the assumption that autism is a life-long condition, rather than being a short-term disability with a cure (Bristol, 1985). Although Rutter and Bartak (1973) reported that all autistic children can improve; the majority of autistic children have been diagnosed as cognitively functioning within the mentally retarded range (DeMyer, Barton, Alpern, Kimberlin,

Allen, Yang, & Steele, 1974; Lockyer & Rutter, 1970). Initial parental involvement in a family intervention programme may be intense; however, subsequent sessions over a longer period of time realistically should allow for a decline of demands for parental support (Bristol, 1985).

In her study of 3 autistic Romanian children, each younger than 8-years of age, Faur (1981) investigated the possibilities and limits of recuperation in verbal communication of an autistic infant. As noted by the cases which differed considerably on two variables: (a) the age of the children upon detection of the autism; and (b) the parent's interest in their child's improvement; parental support and personal circumstances were described as being very influential factors in the facilitation of the children's recuperation of verbal communication.

Dauz-Williams, Harrison-Elder, and Hill (1986) described the potential usefulness of a multi-media approach to family therapy, as provided by the nurses for parents in two case studies. This approach, which was based on Social Interaction Theory, included the following elements: (a) individualized instruction, using multi-media, based on an evaluation of the patient, family members, and their interactions; (b) practical implementation of fundamental behavioural principles and the specific behavioural management plan of the patient; (c) healthy familial interactions, based on family members' recognition of and answering each other's needs, without involving a loss of self-esteem; and (d) assistance for the family in establishing community services and support (Dauz et al., 1986).

Harris (1986) examined the extent to which parents were continuing to implement behaviour modification techniques in their daily interactions with their autistic children. She used 30 families who had participated, 4 - 7 years earlier, in a training programme for parents of preschool children diagnosed as autistic. Results indicated that 86 percent of the parents said that they had used behavioural

techniques during the past week to manage their child's behaviour; 54 percent had used behavioural procedures to teach their child a new skill (Harris, 1986). More than half of the parents reported that they no longer implemented formal behavioural procedures, including the collection of data (Harris, 1986).

Harris (1986) found that mothers were more likely than fathers to use formal behaviour modification techniques, and that systematic paternal usage was directly dependant upon the degree of maternal usage. Harris (1986) concluded that retrospective evaluations of the parent training workshop were all positive, although parents who perceived their child as improving gave stronger endorsements than parents who perceived their child as more limited.

In summary, those clinicians who have actively included parents in the therapies of their autistic children have reported: (a) enhanced generalizations across settings; (b) an increase in appropriate behaviours; (c) a maintenance of gains over time; and (d) a functional adaptation within the family system to their exceptional child.

The parent participation component of this writer's music intervention programme was an attempt to realize these aforementioned benefits.

e. Multi-disciplinary approach to autism

Browder (1983) conducted mail surveys in 1976 and 1980 with 193 primary care pediatricians for the purpose of examining patterns of in-depth evaluations, follow-up, and availability of diagnostic and treatment services for children with developmental disabilities. Most pediatricians made referrals for evaluation for learning disabilities, mental retardation, autism, cerebral palsy, and multi-handicapping conditions (Browder, 1983). Browder (1983) reported that, excluding convulsive disorders and learning disabilities, referrals were most often made to multi-disciplinary

teams. Although the practice patterns during the entire study showed little variance, results of the 1980 survey indicated: (a) a heightened awareness of the children's needs for services; and (b) the pediatricians' desire to learn more regarding the diagnosis and care of developmental disorders (Browder, 1983).

Based on data collected from observations of 10 children in the Infant Care section of the general hospital situated in Jouy, France; Szweck (1983) discussed the multiple checkpoints through which the to-be-admitted patients must pass prior to actual admission. These checkpoints are: (a) four long-term medical examinations; (b) three psychotherapy sessions; (c) three preschool orientations in the hospital kindergarten; (d) placements with three resident nursery workers and two family therapists; (e) two follow-up examinations located at early-childhood medico-social action centers; and (f) one intervention method by a family therapist (Szweck, 1983).

Szweck (1983) concluded that this admittance procedure combined the therapeutic action of many diverse approaches into a synthesized entity, and avoided the danger of parceling out psychotic children to an excessive number of specialists.

Voyat (1983) described the Harlem-based project under the sponsorship of the City University of New York, involved with the treatment of autistic children from disadvantaged families. This project was conducted simultaneously with the training of the educators and psychotherapists who were working with the autistic children (Voyat, 1983). Voyat (1983) posited: (a) the project fostered a close association and cooperation during the shared training experience of educators, psychotherapists, and social workers; and (b) the therapeutic and scholastic curriculum had as its philosophical base the complimentary blending of psychotherapy with education, resulting in the holistic psychotherapeutic treatment of the autistic child.

Trillingsgaard and Nemec (1983) discussed a new team approach used in the treatment of 2-6 year olds who have been diagnosed as autistic, borderline psychotic, or disabled by severe disturbances related to cerebral dysfunction. The multi-disciplinary treatment included interventions by: (a) child psychiatrists; (b) speech therapists; and (c) local educational specialists (Trillingsgaard & Nemec, 1983).

Martinez, Detzner, and Poustka (1985) presented the case study of an 8-year-old autistic boy, who underwent treatment via a multi-modality approach. The boy's treatment combined: (a) educational therapy; (b) lithium treatment; and (c) holding therapy (Martinez et al., 1985).

In summary, the multi-disciplinary approach to autism may be the single way to comprehending the multiple aspects of infantile autism (Ferrari, 1983). Other clinicians endorsed the multi-disciplinary approach to autism, including the aspect of parental training as an aid to: (a) the development of self-confidence in their ability to observe and evaluate their own children; (b) the acquisition of coping skills vis-à-vis conflicts and problems related to their child; and (c) the discovery of the means for a closer interaction with their child (Lang, 1982; Mises, 1983; Trillingsgaard & Nemec, 1983).

f. Holding therapy

Tomporowski (1983) presented the case of a 13-year-old autistic girl, who was assessed as profoundly mentally retarded (IQ 9), and who exhibited disruptive behaviours. A brief restraint was used to decelerate the disruptive behavioural pattern, following a base-line measurement of the effectiveness of standard behaviour-shaping techniques (Tomporowski, 1983). Tomporowski (1983) reported that, following an introduction of the two-trainer holding procedure, the autistic girl's disruptive behaviours decreased. The reduction of disruptive behaviours seemed to facilitate

a progress in a self-help training programme (Tomporowski, 1983). Tomporowski (1983) added that following a fading procedure, the disruptive behaviours of the autistic girl could be controlled by a single trainer, by using only positive reinforcement.

The clinical efficacy of modified holding therapy (MHT) as a technique for treating autistic children was investigated by Rohmann and Hartmann (1985). From a group of 14 autistic children, 7 were randomly selected and treated with MHT for a period of 4 weeks. (The remaining 7 children did not receive the modified holding therapy during this time.) According to parental behavioural assessment, which was determined by use of a behavioural rating scale, there were significantly more positive behavioural changes reported for the autistic children in the experimental group, than for those children within the control group (Rohmann & Hartmann, 1985).

In summary, reports from clinicians who have implemented holding therapies and modified holding therapies with autistic children seem to indicate a significant increase in the positive behaviours of the children.

In this writer's music intervention programme, modified holding therapy was specified for use only when the teachers were confronted with a child engaging in mildly self-abusive behaviour. Physical restraint was the prescribed mode of the modified holding.

A Brief Review of Music Therapy with Other Exceptional Children

Over the past 35 years a precedent has been set as related to using music therapy with children diagnosed as having developmental disabilities. In 1950, rhythmic-psychomotor therapeutic measures were introduced for therapy in infantile cerebral paresis and infantile brain damage with partial developmental retardation (Gollnitz, 1975). Gollnitz (1975) reported that the therapeutic treatment was later

extended to individual and group therapy for developmental and psychic disturbances. One of the basic assumptions of this therapy has been that from the child's perspective, his or her ability to join a group is perceived as an expression of developmental progress, which is prepared by the medium of music in the form of active cooperation (Gollnitz, 1975). Gollnitz (1975) postulated that rhythmic-psychomotor music therapy with this specific population may have the following effects: (a) arouse active participation; (b) develop an awareness of rhythmic forms and expression; (c) help patients learn parts; (d) promote musical enjoyment; (e) bring patients into harmony; (f) co-ordinate respiration, song, and speech; (g) improve motor and posture co-ordination; (h) train limbs in poorly coordinated patients; and (i) train concentration.

Steele (1972) outlined the development of a music therapy department which was established in the Cleveland music school settlement in 1966, and had as its director a registered music therapist. The school was reported as serving children assessed as having: (a) retarded development; (b) learning disorders; (c) disturbed social behaviour; and (d) average or above average ability, combined with a discontentment with traditional teaching techniques (Steele, 1972). According to Steele (1972), the school has often been described by others as having a special programme for children with a special need.

Barber (1973) demonstrated positive behavioural changes and an increased general responsiveness of mentally retarded children with the aid of music. The children's concentration and interest seemed to increase as a result of: (a) presenting the children with music ranging from simple beats and rhythms (which involved the children), to more complex, free-flowing rhythms; (b) incorporating dance movements to music; (c) singing; and (d) listening to mechanical and natural sounds (Barber, 1973). Responding with music, words, dance, parts of the body, and

social greetings, was perceived as facilitating an improved vocabulary for the child (Barber, 1973).

Haris (1977) presented case examples to illustrate the successful effectiveness of art therapies (i.e., music, poetry, painting, and drama) with handicapped children. Over the past 52 years, implemented in the Rudolph Steiner School and homes for curative education, art therapies are perceived as "forcing" the children to view the external world from a nonpathological perspective (Haris, 1977). Haris (1977) suggested that the appropriately chosen artistic therapy facilitates the breaking down of walls of isolation, and simultaneously, the gradual disintegration of pathological obstacles to development.

The effectiveness of music activities designed to improve language skills, and expand auditory awareness was tested by Roskam (1979) with 36 children diagnosed as learning-disabled. The children were divided into 3 groups treated by: (a) music therapy; (b) language development activities; and (c) a combination of both treatment approaches. Although an ANOVA test indicated no significant statistical differences amongst the 3 groups, the group who received the music therapy showed the greatest mean difference between pre- and post-test scores (Roskam, 1979).

Moretti (1979) presented music therapy as a means of enhancing communication in speech-handicapped children. The recommendation was made that musical experiences should be provided for normal children and exceptional children together, so that the exceptional child may cease to be exceptional (Moretti, 1979).

Krauss and Galloway (1982) used Melodic Intonation Therapy (MIT) with language delayed apraxic children. The results of their study indicated significant gains in noun retrieval, verbal imitation tasks, and phrase length.

Creadick (1985), in his discussion of the use of expressive arts (i.e., music, movement and dance, sandplay, sculpture, drawing and painting, puppetry, playwriting,

journal writing, and poetry) in therapy, emphasized that the product of the artistic endeavour is not as important as the process which led to it. The type of markings expressed on paper, or the manner with which a response seems to travel through a body, may be indications to the therapist as to the psychological or physical progress a patient is making (Creadick, 1985).

In summary, several studies have been cited where music therapy was reported as an effective intervention in the facilitation of increased positive behaviours and an overall general responsiveness of developmentally-delayed children.

Music Therapy with Autistic Children

a. Supportive evidence related to autistic children's unusual response to music

In order to demonstrate the responsiveness of autistic children to music, a review of supportive evidence contained within the literature will be presented in this section.

Of the 11 cases of autism described in Kanner's (1971) report, entitled "Follow-Up Study of Eleven Autistic Children Originally Reported in 1943", musical activities were reported in 6 cases. Most of the children had memorized a large repertoire by 3-years-of-age. One child could both discriminate between symphonies and correctly report the names of their composers at age 1½-years (Kanner, 1971). In all of these cases, as in others, two aspects of musical activities were highlighted: (a) the extremely early age at which they were evidenced; and (b) the surprising accuracy with which themes or songs heard only a few times, (occasionally, only once), were repeated (Kanner, 1971).

In a study of 4 autistic children, Despert (1947) observed that one of the children displayed an interest described as an "extraordinary knowledge of recorded music"; another child indicated "an extensive repertoire of popular and classical

music"; the remaining 2 children were considered to be functioning within the "musical genius" range.

Despert (1947) suggested three explanations for the frequency of autistic children's unusual responses to music:

1. These children seem to possess an exceptional acuity to sound;
2. Based upon the autistic child's preference for objects rather than people; this musical interest may be a secondary factor related to their "obsessive preoccupations"...with sound, light, or various objects, or play;
3. Music may be serving as a primary factor in the prevention of the development of human communication; rather than being the result of a barrier against human communication.

Bergman and Escalona's (1949) study of over 30 autistic children revealed only 1 autistic child who did not exhibit a deep interest in music.

The intolerance of the autistic child to direct human contact was remarked upon by Mahler (1952), who recommended that this group of special children should be lured out of their "autistic shell" with all kinds of pleasurable sensory stimulation (i.e., music, rhythmical activities).

Ritvo and Provence (1953) described an autistic boy who, at approximately 2½-years-of-age, developed a particular interest in phonograph records, which he played repeatedly, but carefully skipped over the parts that used the human voice.

Sherwin (1953) proposed not only that music may represent a therapeutic approach with the aim of making contact with autistic children; but also that it may help to improve the autistic condition.

He further hypothesized that, since a disproportionately high percentage of autistic children seem to be the offspring of very intelligent, sophisticated parents; the opportunity to listen to fine recordings and records may be greater within the

environments of these children. Additionally, he reported that another explanation for the frequency of the autistic child's unusual response to music might be related to the fact that music is less specific than speech.

Pronovost (1961), who studied the language comprehension and speech behaviour of autistic children, reported that 4 out of 5 autistic children demonstrated a noticeable interest in and response to musical sounds. Using the Tentative Scale for Rating Certain Aspects of Language Comprehension in Autistic Children (Pronovost, 1961), the following questions were directed at the assessment of the effect of musical stimuli on the autistic child:

1. Does the child recognize music?
2. Does the child distinguish between the singing voice and the speaking voice?
3. Does the child distinguish between vocal and instrumental music?
4. Does the child distinguish between different instruments?
5. Does the child distinguish between live and recorded music?
6. Will the child watch TV or Movies?
7. Will the child recognize specific melodies?
8. Will the child distinguish between different rhythms?
9. Does the child react differently to familiar as opposed to unfamiliar tunes?
10. Will the child listen to music for a longer period than storytelling?
11. Will the child perform actions suggested by the lyrics of a song? (p.233)

While adding that assessment techniques will need considerable refinement, Pronovost (1961) reported that

> *[these] promising results....encourage detailed study of the language development and comprehension of autistic children, combined with analysis of other aspects of their behaviour. (p.233)*

Schulman (1963) cited the case of an autistic child who, at the age of 18 months, sang operatic arias, but failed to develop speech until approximately 3-years-of-age.

Rimland (1964) made the assertion that musical abilities and/or interests are "almost universal" in autistic children. In Rimland's (1978) study of "autistic savants", he supported his initial assertion in noting that music was the most often reported talent with this special population.

Cerebral asymmetry and the development of infantile autism was investigated by Blackstock (1978). The listening preferences of normal and autistic children were examined in two experiments testing the hypothesis that, in autistic children, the right cerebral hemisphere is more active than the left hemisphere. The obtained results seemed to indicate that: (a) when presented with a choice between verbal and musical material, autistic children tended to prefer music; while normal children showed no preference; (b) autistic children were reported as having listened to both types of material predominately with the left ear; while normal children, despite having showed a variation amongst themselves, tended to listen to verbal material more often with the right ear, and musical material with the left ear (Blackstock, 1978).

The results of the Blackstock (1978) study were interpreted as having supported the notion that some autistic children are predominately right hemisphere processors. Blackstock (1978) made the following summary:

> *It is clear from these results that the autistic subjects oriented predominately toward musical information and listened most of the time with their left ears. (p.351)*

Applebaum (1979) measured the musical abilities of autistic children by testing the children's abilities to imitate series of tones and individual tones produced by synthesizer, piano, and voice. Pitch, duration, and rhythm were the

bases upon which two independent observers assessed the accuracy of imitation. Applebaum (1979) found that the autistic children performed overall as well as or better than the normal children, who were matched by age, and who had previous musical experience.

Thaut (1980) presented two experimental studies designed to: (a) test for the receptor preference of autistic children (i.e., auditory vs. visual); and (b) analyze the improvised tone-sequences of autistic children. Both experiments supported the notion that autistic children possess unusual musical skills and musical responsiveness (Thaut, 1980). Thaut (1980) suggested that these same musical aptitudes should be incorporated within the development of a symptom-oriented musical treatment for autistic children.

The responses of mentally retarded autistic and mentally retarded non-autistic children to art therapy and music therapy were analyzed by Hairston (1984). Hairston (1984) reported that there were differences between the non-autistic children as a group, and the autistic children as a group. Although the observed differences between the individuals and the group were not significant; differences were found in the analysis of the descriptive data between the groups of children after the experimental period of music therapy and art therapy (Hairston, 1984).

b. Music as therapy

The National Association for Music Therapy (NAMT, 1975) described music therapy as: the scientific application of music, as directed by the therapist in a therapeutic environment; with an aim to influence behavioural change.

Campbell (1975) suggested that music affects the client in three ways: (a) structured activities such as singing, dancing, playing instruments, and listening to music, may serve to stimulate the client's sense of hearing, and facilitate an

individual response; (b) music may allow for self-expression of feelings and moods on a non-verbal level, which may encourage the client's sense of self-esteem; and (c) through song and dance clients may learn to relate interpersonally and interspatially within a non-threatening environment.

Alvin (1978) stressed that music or sound may be used to trigger a vocal or verbal response, which may be the beginning of speech. However, sound is only one part of the musical treatment; silence, which holds the expectancy of sound, is the other significant element of music therapy (Alvin, 1978). Therefore, increasing auditory awareness may become another possible objective of music therapy.

Thaut (1980) proposed several aims of music therapy, two of which directly applied to the nature of this study:

1. To use music as a non-verbal tool, by which to evaluate the child's responsiveness.
2. To encourage parental support and participation.

c. Music as therapy with autistic children

Hudson (1973) postulated that music therapy gains importance in the treatment of autism due to the presence of music within the context of primitive communication. Music as a physiologic language, may correspond to the rhythm of such physical functions as those associated with brain waves, heart beat, and diurnal rhythms (Hudson, 1973). Thompson (1967) posited that the entire nervous system communicates, preconsciously, as a function of the neural impulses, which become interpreted according to their rhythms. Hudson (1973) concluded that the advantage of music in therapy with autistic children is related to the communication possibilities of music on a primitive, rhythmic level, which may foster a rapport otherwise unattainable through the use of conventional language.

Nordoff and Robbins (1971) described the manner in which they have used music as a means of teaching children assessed as having severe communication problems. The strategy proposed by Nordoff and Robbins (1971) was to build upon the arousal of an initial response in such a child, until the child may come to respond to stimuli other than music. Improvisation of new music has been used continuously, with an aim of involving each child physically and emotionally in the musical activity.

The positive responses of an autistic child to music therapy are often unpredictable, due to the child's lack of consistent rational behaviour (Nordoff & Robbins, 1971). However, signs of pleasure and displeasure, the degree of absorption and retention, and the wish to renew or avoid the musical experience are all observable variables during the course of a musical treatment for the autistic child (Alvin, 1978). Other observable criteria may be related to the involuntary reflexes evoked by the volume, pitch, tone-colour, and/or tempo, associated with any presented sound, or piece of music (Alvin, 1978; Nordoff & Robbins, 1971).

Alvin (1978) cautioned that we may not always know what provokes the responses to an auditory stimulus of a child who is seemingly so "withdrawn", that the sharing of his or her impressions is perceived as being an extremely difficult task. The range of these responses may be: (a) positive to negative; (b) silent to noisy; and (c) passive to active (Alvin, 1978). However, Alvin (1978) also reported difficulties with regard to the observation and interpretation of the autistic child's responses to auditory stimuli.

Physical contact, group activities, and improvisation were among the techniques recommended by Alvin (1978) for use with children diagnosed as autistic.

Reflection (an imitation of the autistic child's actions, through song and movement) and identification (the use of words contained in songs to increase the

self-awareness of the autistic child) were reported as appropriate techniques to be used with this specific group of exceptional children (Boxill, 1976). Boxill (1976) perceived music as being particularly effective with autistic children, due to the potential of a musical treatment to make use of the child's rhythmical stereotype actions, as a means of developing the self-awareness of the autistic child.

According to Thaut (1980), music therapeutic concepts with autistic children include:

1. Object-relation (through playing the instruments);
2. A listening experience;
3. A gradual offering and initiation of human contact through: (a) leading the hands of the child to the instruments; and (b) while holding the child's hands, moving to the music;
4. Through the therapist's imitation of the child's sounds, an interaction may become facilitated;
5. Through musical co-operation (e.g., pat-clap sequences on each other's knees, lap, arms), social integration may be fostered;
6. Through the use of Carl Orff music methods, (specifically, ensemble use of the Rondo form), the child may come to differentiate between: (a) internal/external world; and (b) self/others.

LeShay (1980) reported that Project LINK at the Developmental Center for Autistic Children (DCAC) in Philadelphia has served the three-fold function of: (a) providing therapy to emotionally disturbed children; (b) training mental health professionals and teachers; and (c) consulting with mental health professionals and teachers. The primary goal of this treatment has been to aid the acquisition of a functional communication system within the children of this special population (LeShay, 1980).

Case-studies at the Developmental Center for Autistic Children (DCAC) have indicated that more functional communication systems have been effectively developed for autistic children, through the collaboration of music, movement, speech, and sensory integrative therapies (LeShay, 1980).

Hairston (1984) presented the following aims for a music intervention approach with autistic children: (a) to keep the music therapy session a rewarding experience for the child; and (b) to keep each child involved. Hairston (1984) hypothesized that it is the achievement of these two aims which maximizes the possibility of reaching the potential of each child.

The major area of concentration vis-à-vis music therapy with autistic children is socialization; the primary objective is to encourage the autistic child out of withdrawal, thereby improving relationships with others, fostering group activities, and facilitating co-operation (Hairston, 1984).

Hairston (1984) reported that Developmental Therapy (Wood, 1975) is a treatment process which has utilized normal experiences and changes in the developmental processes as a framework for therapy. Bachrach, Mosley, Swindle, and Wood (1978) proposed its use for the severely delayed; fusing art therapy (Williams & Wood, 1977) with music therapy (Purvis & Samet, 1976).

The values incorporated within the curriculum of Developmental Therapy which have been considered as significantly important have been: (a) building self-confidence; (b) creative self-expression; (c) skill development; (d) non-verbal and verbal communication; (e) structure as opposed to non-structure; (f) group activity participation; (g) attention span adjustment; and (h) co-operation (Hairston, 1984).

d. Reports of empirical studies using music therapy with autistic children

The use of music and creative arts therapy with an 8-year-old autistic girl was reported by Goldstein (1964). The goals of this therapeutic treatment were: (a) to establish a rapport with the girl; (b) to gain an insight into the autistic child's behavioural patterns, including her attention span, toleration level, and degree of resistance; (c) to develop a working therapeutic relationship with the young girl, based on a sensitivity and acceptance of her actions; (d) to increase the autistic girl's vocabulary; and (e) to acquaint her with the following basic skills: (i) the improvement of attention span and tolerance level; (ii) the improvement of body-awareness; (iii) the development of a relationship with other individuals, through music, body movement, and language as a means of personal expression and communication.

Following a 6-month treatment period, Goldstein (1964) reported an assessed increase of 10 months in mental age on the Stanford-Binet Intelligence Test, Form L. The autistic child's ability to concentrate and her tolerance level were described as noticeably improved; in combination with an evidence of her drawings having become more organized and recognizable (Goldstein, 1964).

Frith (1972) studied the colour and tonal sequence productions of autistic children. One of the most notable effects of the experimental conditions was that playing on the xylophone seemed to enable autistic children to most closely approach "normal" patterns. In comparison to their colour sequences, autistic children were reported to have produced tunes which were more complex, less restricted, and more original (Frith, 1972). Autistic children were described as being more exact in their rhythms than subnormal children, corresponding with their reported tendencies to strictly adhere to temporal rules (Frith, 1972).

Mahlberg (1973) gave a descriptive account of her work with an autistic boy, using a music intervention programme designed to: (a) increase attention span; (b) interrupt autistic behaviours; and (c) teach the autistic child non-verbal communication techniques. In order to more accurately assess the effectiveness of a music therapy programme with autistic children, Mahlberg (1973) suggested the need for further research in the area.

Saperston (1973) described his use of music in establishing communication with an autistic mentally retarded child. The primary goal of establishing communication with this autistic child was accomplished after a period of 18 months. Saperston (1973) reported that the music sessions became the single time in the boy's day when he would exchange ideas with another individual. Due to the fact that no other person had been working with the autistic boy, his progress was directly associated with the musical treatment he had received (Saperston, 1973). Saperston (1973) postulated that, as a result of their musical relationship, the following positive behavioural changes had been elicited from the autistic boy: (a) an increased awareness of his immediate environment; (b) an increased reaction to people and objects; (c) an increase in eye contact; and (d) more frequent vocalization.

Saperston (1973) concluded:

> *One can see...from this study the effectiveness of the use of music in breaking through these emotional barriers and establishing communication with one who has not as yet appeared to experience communication. (p.188)*

O'Connell (1974) presented the case of a hyperactive 8-year-old autistic boy who was assessed as having had absolute pitch and exceptional musical ability, despite the fact that he was not able to read music. Over a four year period, the autistic boy received individual music lessons two or three times a week, which resulted in his ability to read music moderately well, and to accompany himself

with chords at the piano (O'Connell, 1974). O'Connell (1974) reported that the autistic boy's behavioural patterns improved in accordance with his increased competencies in musical activities, and that his ability to concentrate was enhanced as he was led to read music, performing it in rhythm without permitting his attention to wander.

O'Connell (1974) postulated:

> *The progress that he has made in rendering his musicality less autistic has paralleled his favorable progress in school and might even be said to have had some effect on his increasingly acceptable behaviour. (p.229)*

e. Orff-Schulwerk with autistic children

The efficacy of this writer's Orff-Schulwerk based music intervention programme vis-à-vis the acquisition of socialization skills in autistic children forms the central focus of this study. Therefore, a review of the literature pertaining to Orff-Schulwerk with autistic children will be presented in Chapter III.

Although two separate studies (Bitcon & Ponath, 1972; Hollander & Juhrs, 1974) highly endorsed the implementation of Carl Orff music pedagogy in a music therapy approach with autistic children; no further studies incorporating a Carl Orff methodology for this distinct purpose have been published. Additionally, no empirical intervention studies employing the Orff approach have been reported.

The Carl Orff methodology and philosophy formed the basis of this writer's music intervention programme. The music sessions were specifically designed to facilitate the acquisition of communication and prosocial behavioural skills in autistic children. This writer's fundamental belief is that music is a non-verbal therapy which spans the gap in communication between thought/feelings and speech.

CHAPTER III

THE DEVELOPMENT OF THE MUSIC INTERVENTION PROGRAMME

Fundamental to this programme is the philosophy, rationale, basic assumptions and principles held by its author pertinent to the special needs of an autistic child and the modes used by helpers to address those needs. Superimposed upon this belief-system is a consideration of the needs of the teachers and Significant Others who are involved in the music programme. The attainment of programme goals is contingent upon the clarification of the roles and responsibilities of the participants, and the congruency of their personal philosophies.

This chapter is a presentation of the writer's conceptual framework implemented in the development of the Orff-based music intervention programme.

Background to the Present Programme

a. Carl Orff's Das Schulwerk/Music for Children

Carl Orff (1895-1982) designed a music programme for children which requires that each child play an active part in the creating of ensemble music. Since 1926, Carl Orff has been associated with the children of the Guenterschule, a school for music, dance, and gymnastics, located in his home-city of Munich. In 1948, Orff did a broadcast series on the Bayerische Rundfunk, in which he worked with children, using his own music education methodology. His research and experience culminated in the five-volume book series, known in European countries as 'Das Schulwerk', and in English-speaking countries as 'Music for Children'.

Rhythm is a predominant feature in the Orff-ensemble, and is based on Orff's belief that the rhythmic element closely corresponds to the natural meter of

speech. Orff believed that children have a natural desire to incorporate speech and body movement rhythms in their own musical improvisations.

Hall (1960) explained the philosophy of the Carl Orff music methods approach, and inadvertently provided another link with the doctrine of ethos and the views held by the philosophers of Antiquity:.

> *As music teachers we too often think of music as a mathematical problem, rather than an entity which forms the axis of all living forms. Our bodies function with this life force in the unconscious rhythms of our hearts, our breathing, our walking; in nature we have the seasons, the rising and setting of the sun, the continuity of day and night and phases of the moon. Let us accept Orff's credo that rhythm is expressed constantly in the speech and movements of every child and that we must develop it through these mediums. (p.6)*

The Orff approach to ensemble work has been the single music education method which aims to develop..."rhythmic perception through its natural evolution of speech, rhythm and movement - three prehistoric elements in music" (p.6).

In Orff's "Music for Children" programme, the rhythmic patterns derived from speech and movement are transferred into a melody, which then is played on the Orff instruments, thereby facilitating the exploration of tone colour. Initially, the Pentatonic scale, a basic component of much folk music, is utilized in the Carl Orff method. This scale is made up of five whole tones: i.e., C Pentatonic has C D E G A. As a harmonic basis for the ensemble, Orff uses a bordun. The bordun is made up of open-fifth intervals: i.e., the bordun for C Pentatonic is C and G. From the moving bordun figure comes the development of an ostinato bass. Both the bordun and the ostinato bass become played throughout the entire ensemble piece, providing a ground bass figure for an overlying melody. This harmonic approach was used centuries earlier, and was known as a ground bass.

As the children gradually move from the imitation of the rhythms from speech patterns and body movements on body-parts, and non-melodic instruments, the same

imitations are transferred into melodies on the instruments, thereby re-creating primitive music ensemble.

Orff-Schulwerk,--the utilization of "elementary music" in learning through discovery,--and the philosophy of the Carl Orff music education approach formed the foundation for this music intervention programme, designed especially for autistic children.

b. Orff-Schulwerk with autistic children

The basic philosophy of the Carl Orff music method encircles the concept that materials should be created for the child, by the child, and according to the child's own viewpoint; this is a fundamental criterion for autistic children. The aim is to provide an inviting, non-threatening environment in which children may create their own music. In making high-quality percussion instruments available to children--such as the Orff-designed xylophones, metalophones, glockenspiels, tambours, tympani, woodblocks, and finger cymbals (and others)--Orff..."developed a medium for children to enhance their own creative faculties..." (Hollander & Juhrs, 1974). Including the pentatonic scale within the format of the Orff music programme increases the likelihood that the child would feel comfortable while encountering either: group authorship, and/or personal musical composition. Since the pentatonic scale does not include the fourth and seventh degrees of the major scale, its use ensures a low probability that the children would create any musical dissonance in their instrumental ensemble work. Dissonance may sometimes be perceived as "making a mistake" or "being a failure" in instrumental playing. The omission of the fourth and seventh degrees of the major scale, therefore, provides for each child's success in instrumental ensemble work. Hollander and Juhrs (1974) found that even the most severely disturbed autistic child could play on

the Orff instruments, and simultaneously receive reinforcement due to their quality of sound.

Musical games, storytelling, dance, art, poetry, and trips of fantasy are often enhanced by using the Orff instruments as symbols of imagery. The Orff clinician facilitates the exploration of open-ended statements through: (a) the introduction of simple ostinatos (Bass - figures); (b) the invitation for self-expression; and (c) the use of the simple rondo form (A:B:A:C:A:D:A....), where each A section is the group participation, and B,C,D, represents an individual improvisation (Hall & Walter, 1956).

Carl Orff proposed the notion that rhythm, as experienced in music, originally stems from the rhythm of peoples' speech patterns and physical activities; rhythm is derived from the manner in which people join together in doing things (Bitcon & Ponath, 1972). Hollander and Juhrs (1974) concluded that Orff-Schulwerk (Orff-Schoolwork) has proved to be their most effective mode of treatment in the Autistic Children's Program (1974), at Napa State Hospital, Imola, California. They provided the following two reasons for this success: (a) autistic children tend to respond to music and non-verbal communication; and (b) the Orff music method emphasizes the rhythm in speech patterns and body movements.

Although the composer and music-educator, Carl Orff, originally developed his Orff-Schulwerk with German school children as the target population; Carol Bitcon (Registered Music Therapist at Fairview State Hospital, Costa Mesa, California) adapted the Orff music methodology for the mentally retarded (Bitcon & Ponath, 1972). Bitcon's (1972) incorporation of Orff-Schulwerk into a music therapy programme is used in achieving the behavioural objective's of an individual's treatment plan.

Hollander and Juhrs (1974) asserted that the research which was conducted by the Autistic Children's Program at Napa (California)..."gives specific credence to the concept that nonverbal communication with our population of children produces the highest frequency of positive reactions." (p.2) Based on the fact that communication within Orff groups stems from rhythm, chants, and/or song, Orff-Schulwerk may be perceived as a partially non-verbal therapy (Hollander & Juhrs, 1974).

c. A set of personal philosophical principles

(1) Needs of mankind

Man is in a constant state of "becoming". Motivated by social and interpersonal factors, man moves along a continuum ranging from regression, maintenance, (sometimes perceived as "stagnation"), through to progression (perceived as positive change, or "growth"). Man, the individual, is a unified organism, and is social in the sense that humans are perceived as being motivated primarily by social interest. The environment and the interaction of others both have influential effects on each member of society. Man is truly living within a social context, that is, within overlapping systems of social relatedness which, in turn, provide feedback for each person's developmental process. Man may not be seen as being outside of a social context, since both man and society are integral. Therefore, all significant life problems are social problems, and the values adopted by man are social values.

In man's development of personality, social urges take precedence over sexual urges, consciousness takes precedence over subconsciousness as the primary source for imputing values and ideas, and human behaviour is both more goal-directed and purposeful than it is determined by genetic endowment or early sexual impressions.

Rather than focusing on varying degrees (or the absence) of mental illness, man is pulled by the subjective future towards the attainment of goals.

The primary thrust of man's activity is characterized by a striving from a perceived negative position towards a more positive situation; that is, a movement from perceived inferiority to superiority. Socialization, man's innate human ability, must be developed in order to facilitate the acquisition of man's goals.

Man has needs: basic, physiological needs; psychological needs (i.e., a sense of providing and receiving nurturance); and self-actualization needs (i.e., a realized maximization of personal potential). With caring and thoughtful direction from Significant Others, man learns to survive, and to grow.

(2) Needs of autistic children

One of the challenges confronting school systems today is to provide for the total education of all individuals; the school's approach must be in accordance with the needs of each student. Therefore, an understanding of the autistic child's need to explore the environment in order to organize his or her impressions of life events is a chief prerequisite of contemporary educators.

The union of the avoidance mode of behaviour and the exploratory mode is of primary importance to the developmental progression of all children, including children with autism. The child's gathering of impressions from exploration, coupled with the eventual categorization of similarities and differences, leads the child to the work of organizing his or her impressions. In time, the child begins to integrate the information gleaned from one sensory input mode with information received from another. As this integration occurs, the child learns to both differentiate between, and combine present/past sensory experiences.

The child's storage of sensory impressions related to emotional tone, facial expression, and eye contact facilitates the recall of information in the school setting. The child becomes involved in his or her deductions regarding the events of the day. The realization of any congruence between abstract ideas and reality is critically important for the intellectual and academic pursuits of the autistic child. This philosophy assumes that learning takes place through sequential learning patterns and response, in combination with the child's unique cyclic progressions. Therefore, the needs of the autistic child include a developmental sequence of: exploration, organization, integration, and conceptualization.

(3) Needs of families with autistic children

Taking as a premise that an atypical child has the potential effect of producing an atypical family, families with autistic children have a whole set of special needs. Bertalanffy (1968) posited that the family is a system, or sets of elements in interaction. Goldenberg and Goldenberg (1980) further explained the nature of a system as being an entity consisting of component parts which are either constrained by or depend upon each unit. Within the definition of Systemic Theory, the component units of a system are in covariance with each other. Together, these units form a whole entity, which is larger than the sum of its interacting components.

Some of the following situational disturbances may unbalance the homeostasis of the family dynamic which includes an exceptional child: (a) parental denial and/or guilt, (b) sibling jealousy of the parental attention received by the exceptional child in the family, (c) frustration with earlier faulty diagnoses of their child, (d) concern with the added expenses associated with the medical needs of their exceptional child, and (e) increased familial responsibilities–e.g. participation in therapy or intervention with their family member who has special needs.

Clinicians involved in this music intervention programme must have an understanding of the realities associated with the family dynamic which includes the special needs of an autistic child.

d. Rationale

The justification for designing a music intervention programme for autistic children is rooted in the writer's belief in the relationships that exist amongst (a) sounds, (b) phenomena, and (c) human temperament. Greek philosophers posited that the "music of the spheres" could effect a change in the temperament of humans. Additionally, the Greek-held "doctrine of ethos", which posited that music has the effect of influencing the will of human beings, was taken as further support of the notion that music may serve to bridge the communication gap between autistic children and Significant Others.

The autistic child presents delayed or impaired abilities vis-à-vis communication and socialization skills. Music intervention with autistic children was given more credence during this writer's consideration of the Mahler (1952) model, which recommended that the therapist "lure" the autistic child out of his or her "shell" by using rhythms, music, and sensory stimulation.

The notion that music may serve to be a physiologic language was put forth by Hudson (1973). Essentially, Hudson's premise was that music may communicate at a more primitive level of rhythm, thereby enhancing the possibilities of communication which otherwise may have been lost through any language of the consciousness.

Reasoning that this mediation of music is operative on a primeval level, this writer drew a conceptual link between the Hudson (1974) premise and the "elementary music" of Carl Orff. Hall and Walter (1956) described Orff's "elementary music"

concept as..."pertaining to the elements....rudimentary"...(p.6). Consistent with this conceptual link; this music intervention programme was designed to "draw-out" the autistic child from his or her shell, by using a presentation of music which forms a unity with the rhythms of the body movements and the language patterns which surround the child daily.

e. Basic assumptions and principles

1. Music is a physiologic language.
2. Autistic children are "drawn" to the primitive elements of the music they hear and, subsequently, create within this programme.
3. The use of repetition throughout the music programme will help the low-functioning and mid-range child to integrate and organize similarities and differences within the format of the programme.
4. The use of enrichment variations will aid the high-functioning child to progress at his or her own pace, and will avoid the effects of boredom and/or monotony within the programme.
5. The inclusion of family members will (a) facilitate the generalizability of the effects of the programme, and (b) help parents and siblings to learn some other effective ways of addressing the needs of the autistic child within their family.
6. Each specific component within the music intervention programme has its own rationale and goals, as listed within the context of each lesson.
7. The programme consists of ten lessons, primarily due to the time constraints encountered by this writer during its development. Any increase in "contact-time" with the child and his or her family would be seen as potentially beneficial for both the child and the family.

8. The programme is presented in a hierarchical order. However, at their own discretion, teachers may spend more than one week on any given lesson.
9. A caring, personal teacher-child relationship is fundamentally important throughout the implementation of this programme.
10. A co-operative, understanding parent-teacher relationship will facilitate the effectiveness of this programme.

The second order principles posited by Blocher (1987) will be utilized throughout this programme within the Teacher Training and Parent Participation components to both enhance moral reasoning and clarify ethical considerations:

1. Respect for human life.
2. Respect for truth.
3. Respect for privacy.
4. Respect for freedom and autonomy.
5. Respect for promises and commitments.
6. Concern for the weak, vulnerable, or helpless.
7. Concern for the growth and development of people.
8. Concern lest others be harmed.
9. Concern for human dignity and equality.
10. Concern for gratitude and reparation.
11. Concern for human freedom. (p.36)

f. Needs assessment for programme participants

(1) Student needs

Autism occurs in about 5 of every 10,000 births, and every 4 out of 5 are

male (The Autism Society of Canada, 1987). Logically, the most fundamental need of autistic children is the finding of a cure for their particular syndrome.

Common needs that children diagnosed as autistic share with all children are: (a) to develop a sense of security and success; (b) to develop self-control; (c) to develop self-expression; (d) to develop creativity; (e) to develop responsibility; (f) to develop socialization skills (i.e., the learning of reciprocity/ that is, learning to get along with others in a group setting); and (g) to make a "successful break" from home.

Generally, children need to be protected, without becoming overprotected; cared for, without becoming pampered; and loved, without experiencing any specific partiality.

Children diagnosed as autistic particularly need help in developing (a) fine and gross motor skills, (b) language and communication skills, (c) appropriate object relationship, (d) appropriate interpersonal relationships, (e) an understanding of interspatial relationships, (f) body awareness, (g) auditory awareness, (h) object permanence, and (i) socialization skills.

This population of children has a very real need for people not to give up on them. Negativity coupled with frustration may result in the young adult's eventual placement within an institution. An early diagnosis, followed by an early intervention method particularly suited to the unique needs of the autistic child, may lead to his or her eventual integration within a Sheltered Workshop setting, university, and/or society in general.

One especial need of autistic children is our patience. Owing to the unpredictable behavioural characteristics of the syndrome, the child's progress may wane or even regress from time to time. Feeling discouraged is a very natural response in such a situation; however, staying "with" the child, trying to pull the

child out of his or her "autistic shell" is fundamentally important to the child's hoped for gradual behavioural improvement.

(2) Teacher needs

An understanding family is an asset for any teacher, but is especially so for the teacher who is working with this population of special needs children. The stresses and demands directly associated with this daily work will need a channel for release, comfort, and acceptance. Significant Others will need to at least acquaint themselves with the daily dynamics experienced by the teacher who is participating in this programme. The teacher needs to know that he or she has a support system–people who believe that what the teacher is doing is not only important personally, but is also significantly important to the autistic children and their families.

(3) Some teacher needs vis-à-vis parents:

1. Teachers will require the parents to provide them with any pertinent information regarding their child.
2. Teachers will request the parent to sign any necessary release forms (whenever appropriate).
3. Teachers will require feedback from the parents regarding any "at home" observations pertinent to their child.
4. Teachers will require any verbal appreciation as deemed appropriate by parents.

(4) Parent needs

Shepherd and Shepherd (1987) have described several parental needs which this programme will attempt to address. Typically parents have gone through very stressful periods associated with their response to the fact that they have a child who has been diagnosed as autistic.

Some of their needs are:

1. That teachers be willing to rearrange their schedules should a family emergency occur;
2. That teachers be prompt;
3. That teachers at least recognize that parents may be important in the corrective process of their child;
4. That teachers listen to parents;
5. That teachers believe parents;
6. That teachers encourage parents;
7. That teachers involve the parents in the intervention whenever possible;
8. That teachers talk to the parents in "layman's terms";
9. That teachers be honest with parents, and explain their own biases;
10. That teachers direct parents to up-to-date, clearly written, and empirically sound information regarding autism;
11. That teachers realize their own fallibility;
12. That teachers encourage the parents to seek second opinions;
13. That teachers go to see the child within his or her own home;
14. That teachers realize that an atypical child often helps to create an atypical family; and
15. That teachers be human and occasionally share some of their frustrations pertinent to the child with the parents.

g. Roles and responsibilities of programme participants

(1) Teachers

Teachers need to have as thorough background as possible in Education, Psychology, and Special Education. Specifically, teachers need a prerequisite understanding of the behavioural and physiological components associated with autism. The interaction between the teachers and the children in this programme is intense and personal, in that the teachers strive to "read" any nuances of changes expressions and/or behaviours of the children. Respect for each other is a basic element of this teacher-student relationship.

Teachers are required to familiarize themselves with 5 techniques, which they will use interchangeably, depending on their assessment of the child's immediate need:

- Total Guidance

  This technique involves guided participation (physical direction). If the child requires to be led through any designated task, the teacher will assist as much (and only as much) as deemed necessary.

- Modelling

  This requires the teacher to demonstrate to the child how to complete a task.

- Prompting

  According to the moment-to-moment assessment of the child by the teacher, the decision is made, relative to the degree of assistance required by the child, to complete a specific task. Whether the child needs a touch on the shoulder--e.g., a finger pointed in the direction he or she is expected to walk towards, a nod of the head, or just an encouraging

smile–is decided upon by the teacher continuously throughout the music sessions.

- Partial Prompting

  Any observation of increased independence by the child in the completion of a specific task, should simultaneously trigger a lessening of the prompt by the teacher.

- Fading of the Prompt

  Any observation of the child's ability to successfully complete a required task should result in a fading of the teacher's prompt.

One of the major challenges for the teacher is to be constantly aware of the delicate balance between totally guided participation and the increased independence of the child.

During the procedures of the individualized programme, the teacher should be constantly thinking ahead and formulating realistic new goals for the child, keeping in mind that although the child's performance may have improved, he may not have reached the ultimate level of performance.

The teacher needs to have a genuine desire to work with children diagnosed as autistic. An enthusiasm for being with the children, and honestly trying to find ways to help them will be necessary critical elements of the teacher's personal schemata.

(2) Parents

Parents have the responsibility of being open and honest with teachers regarding their child. In order to combine their efforts with teachers effectively, parents should:

1. Realize the necessity of viewing the programme tapes prior to the parent-participation component;
2. Develop an understanding and patience relative to the realities of scheduling;
3. Make some arrangement for the care of their other children, whenever they, themselves, are expected to participate within the programme;
4. Consistently be available throughout the parent-participation component;
5. Give the teachers their honest feedback during the course of the programme; and
6. Frequently play the audiotapes of the music sessions within the home.

Additionally, parents should strive to maintain a positive outlook for as long as possible.

h. Programme goals

(1) General objectives and goals

According to their abilities, children will be guided:

- To tolerate a group setting;
- To enjoy a group setting;
- To cooperate within a group setting;
- To use some speech/to expand existing vocabulary;
- To attend to tasks for extended periods of time;
- To become aware of body parts;
- To learn the names of body parts;
- To differentiate between self and others;
- To follow directions;
- To develop imitation skills;
- To tolerate touching/to tolerate being touched;

- To enjoy touching/to enjoy being touched;
- To develop a sense of space and time;
- To develop body coordination;
- To develop personal non-verbal expression/communication; and
- To develop fine and gross motor skills.

(2) Goals for the Body Movement Component

Use of the body specifically to develop:

- a sense of space, time, and co-ordination;
- personal non-verbal expression/communication; and
- fine and gross motor skills.

(3) Goals for the Rhythmic Component

Utilizing rhythmical activities to develop:

- rhythmic memory;
- an understanding of musical independence;
- a sense of meter and pulse;
- a comprehension of rhythmic co-ordination; and
- an understanding of form.

(4) Goals for the Ensemble Playing Component

Using the participation in group playing to foster:

- differentiation between self and others;
- an understanding of form;
- enjoyment in creating music with others;
- the realization/development of improvisation skills;

- the development of fine and gross motor skills; and
- object relationship.

i. Programme components

The majority of the programme components were developed especially for the autistic child. Combined with the Orff-Schulwerk approach to music intervention, elements of Play Therapy, Dance Therapy, and Physical Education were integrated throughout this music programme. The common thrust of these elements was the facilitation of the further development of the child.

Additionally, the notion of including the family within this music intervention programme was an attempt to extend guidance to the encircling family system of the autistic child. The use of audio/videotaping was a hoped for means of initiating the family system to programme elements of potential benefit to their child.

j. The musical instruments

Taking Orff's basic premise that physical response to music is inherent in all humans, the body becomes the first instrument used to heighten and accentuate the rhythmic perceptions of children. Simple body-movements such as clapping, stamping, clap/patschen (a clapping the hands/slapping the legs sequence), and finger snapping is incorporated within this music programme.

Carl Orff has designed a set of instruments specifically adapted for children. These instruments are played with mallets, and resemble the gambangs and chimes of the Javanese orchestra. The metalophones and glockenspiels have metal bars, and produce a ringing, clear tone. The xylophones have wooden bars, and have a hollow, dull sound. All of the instruments have been tuned in the key of C major.

The bar instruments include the following: (a) soprano and alto glockenspiel, (b) soprano, alto, and bass xylophone, and (c) soprano, alto, and bass metalophone.

Since the bars of these instruments may be removed, the possibility exists to provide a "failure-proof" situation for the children in the programme. The instruments are used for ensemble playing, including as much improvisation as possible. The child may begin with one or two bars on the Orff instrument and, with increased practice, gradually add extra tone-bars. Furthermore, during any solo work in the individual sessions the child may use the diatonic and/or chromatic scales by adding the available tone-bar attachments to the bar instrument. This may facilitate the development of any personal scales and the discovery of any melodic/harmonic variety through dissonance. The programme is set up in such a way that any child who may demonstrate a degree of affinity for both the instruments and the actual ensemble playing, may have more bars gradually left remaining on his or her instrument. In this respect, the instruments allow for greater flexibility within the music programme.

In addition to the tuned Orff instruments, other percussion instruments are used in this programme: i.e., triangle, finger cymbals, wood block, jingles, tambourine, claves, guiro, maracas, sleigh bells, and soprano/alto/tenor/bass recorders. The tuned drums include tympani, tambours, and a bass drum.

k. Materials

- The Orff instruments
- A Stereo
- Music Builders Recordings I-V
- Birkenshaw, Lois (1977). Music For Fun/Music For Learning. Toronto: Holt, Rinehart and Winston of Canada, Limited.

- Chastian, Lyle, D. (1985). A Handbook on the Use of Songs to Teach Autistic and Other Severely Handicapped Children, Minnesota: White Oak Press.

This writer's suggested Orff arrangements for poems, nursery rhymes, traditional songs, and folk-songs.

I. Planning

The planning of this programme requires the utmost flexibility. Careful task-analysis, success-orientation, sequence, consistency, and sensitive observation-evaluation constitute the necessary components of the planning of procedures within the programme. Teachers endeavour to become sensitized, so as to develop an awareness of each child's reactions to particular situations, stresses, and activities. Thoughtful planning may help to reduce failure and subsequent frustration for both the child and the teacher.

Each lesson plan includes objectives, procedures, variations, and added objectives for each proposed task. An important strategy for teachers is that they meet weekly to actively prepare for each new lesson plan. During these practice sessions, the teachers should receive feedback from the leader on the procedures for each new lesson. Variations may be used, at the discretion of the teachers, during the group session. However, the primary intention is to utilize the variations during the individualized session, as a form of enrichment and real preparation for the group setting.

Individualized objectives are set for each child and prioriterized according to the communicative and social needs of the child and his or her Significant Others. The procedural planning is a reflection of these objectives.

m. Summary

The author's conviction is that this music intervention programme is not a cure for infantile autism; but rather a therapeutic approach aimed at helping the autistic child to realize and maximize his or her potential, and to learn to "work around the autism" throughout life.

Much remains to be learned about autism; however, a high percentage of our professional information comes from the children themselves. Therefore, being willing to both learn from the children, and to work with what they give us everyday is critical to their developmental progress.

This music intervention programme represents an attempt to move the autistic child ahead in the world. The programme neither forgets the children, nor dismisses them. This programme was specifically designed for them.

In all, there are ten detailed music session plans for the teachers, which are contained within Appendix A.

CHAPTER IV

PROCEDURES FOR CONDUCTING THE STUDY

This chapter describes the following: (1) the sample included in this study; (2) the research design; (3) the instruments utilized to collect the data; and (4) the methodology used in the analysis of the data in this study.

The Sample

The sample in this study consisted of 3 children, who were each residents of St. John's, Newfoundland. Each of these children had been previously diagnosed as autistic. Two of the children obtained positive scores on The Autism Behaviour Checklist (ABC). One of the children initially scored 50 on the ABC. This score was 4 points away from the 54-67 range described by the authors of the instrument as possibly providing..."some confusion with a small percentage of individuals examined" (Krug, Arick, & Almond, 1980, p.11). The authors of the instrument stated that..."ninety-five percent of [their] sample who received an ABC total score lower than 53 were not diagnosed as autistic" (Krug, Arick, & Almond, 1980, p.11). However, this child was retained in the sample on the basis of the knowledge that (a) the ABC score was derived from parental response; and (b) this 9-year-old boy had previously received a professional diagnosis of autism by two experienced clinicians from the Clarke Institute who used the Schopler List, the Alpern-Boll Developmental Scale, and their clinical judgement. The ABC constitutes subtest one of the Autism Screening Instrument for Educational Planning (ASIEP) (Krug, Arick, & Almond, 1980).

The three boys, ages 7-, 9-, and 11-years, were selected from a population of

10 autistic children in the St. John's area, and represented three different levels of functioning: high-functioning; mid-range functioning; and low-functioning.

Two of the children had parents pursuing professional careers; i.e., a biologist/a chemist; and an engineer/a school teacher. The third boy's parents were both trained clerical workers.

Subject H (High-Functioning Child): H was 7-years-old, and presented with disordered language. Primary characterizations of H's communication skills were: (a) a high level of distractibility; and (b) gaze aversion. H's mother reported that his receptive language had been delayed by approximately one year. However, H's expressive language was characterized by appropriate syntax and lexical skills. Typically, H did not attempt to request information, and demonstrated poor listening skills.

Subject M (Mid-Range Functioning Child): This 9-year-old boy communicated primarily through the use of gestures and screaming. From time to time, some isolated words were spoken by M, but not in a consistent fashion. M's mother reported that he was seemingly not interested in talking at age 3-years, and that he did not follow simple instructions. M presented a self-stimulation behaviour (i.e., "flapping") fairly frequently.

Subject L (Low-Functioning Child): L was 11-years-old, and extremely withdrawn. He presented virtually no spoken language, and gaze aversion. L tended to communicate through the use of gestures. His mother reported that he was not having conversations since age 10-years. L was mildly self-abusive (i.e., biting), and was subject to temper tantrums.

Data Collection

Since there is no clear operational definition of infantile autism, subtest one of the Autism Screening Instrument for Educational Planning (ASIEP), known as the Autism Behaviour Checklist, was used to provide this study with an objective definition of autism.

Based on the particular behaviours checked, and the frequency of items checked on this scale, a behavioural profile was plotted for all 3 children. This provided the author with a quantified baseline of negative behavioural characteristics from which to extrapolate future student change in the area of behaviour management (Krug, Arick, & Almond, 1980).

Subtest number three of the ASIEP is called the Interaction Assessment. This provides a data-based assessment of social interaction between an adult and a child. This subtest was used to delineate a general social interaction profile for each child.

During the ten weeks from October 3, 1987 to December 7, 1987, the three children in the group met each week for a 60-minute music therapy session. In addition, each child received an individual weekly 30-minute session.

To ensure reliability in the collection of observational data, the music therapy sessions for the following weeks were videotaped: Weeks 1 and 2; Weeks 5 and 6; and Weeks 9 and 10. Parents were requested to view these videotapes at their own discretion.

The Autism Behaviour Checklist (Krug, Arick, & Almond, 1980) was administered at four data collection points during this study: (a) prior to the onset of the music intervention (October 1, 1987); (b) following 5 weeks of the music intervention (November 6, 1987); (c) upon completion of the music intervention programme

(December 11, 1987); and (d) at a one-month follow-up data-point (January 12, 1988).

Subtest three of the ASIEP was given at five data collection points during this study: (a) an average of two consecutive administrations prior to the onset of the music intervention (October 1, 1987 and October 3, 1987); (b) following two weeks of music intervention (October 16, 1987); (c) at the midway point of the music intervention (following five weeks of the programme) (November 6, 1987); (d) another average of two consecutive administrations using two different Adult present conditions, upon completion of the programme (December 11, 1987, and December 12, 1987); and (e) one at the one-month follow-up data point (January 9, 1988).

Additionally, each of the three teachers recorded anecdotal data at the end of each music session within the programme.

Analysis of the Data

Using the data obtained from the ABC and the Interaction Assessment of the ASIEP, behavioural profiles were plotted for each autistic child who participated in this study.

The ABC scores were derived from the parental responses to the Checklist at four data collection points over the course of the study. The data obtained from the Interaction Assessment were the results from behavioural time-sampling procedures taken at five data collection points during this investigation.

Pre-, mid-, and posttest observation scores of the occurrence of the assigned behavioural variable were plotted for each of the children in this study.

Descriptive data, which involved the examination of social interaction patterns,

were recorded in the researcher's log, in order to facilitate comparative qualitative analysis.

Scheduling

As a group, the three children met weekly for one hour over a period of ten weeks. The children worked with three teachers (one teacher per child). Each individual child also received a 30-minute session with the three rotating teachers every week.

The music treatment began with the individual session, as a means of preparation for the group setting. Each new lesson plan was initiated in the individual's session, and was followed up in the subsequent group sessions.

Parents of the children participated in the programme sessions from the seventh week through to the end of the tenth week.

The teachers monitored the children, in order to become fine-tuned to the strengths and weaknesses of each child. Flexibility within the framework of the schedule was emphasized, so as to avoid either the possibility of inadvertently pushing a child past his limit, or failing to help a child realize his potential.

Setting

Teachers and children met in a music room located in the Education Building of Memorial University, St. John's, Newfoundland. The room has an area which accommodated the activities planned for this programme: i.e. sitting in a circle, playing the Orff instruments, and mirror movement games.

The stereo, recordings, and all of the instruments for the programme were located in this music room.

The parent participation component

The involvement of the parents was an important component of this programme. Parents were requested to view the available videotapes of the music sessions (session #1, #2, #5, and #6), as a means of preparing for their eventual participation with their children and the three teachers in music sessions 7, 8, 9, and 10. Sessions 9 and 10 were also videotaped, showing the children, parents, siblings, and teachers involved in this music therapeutic process.

Audiotapes of every session were supplied to the parents, with the encouragement of the teachers to play the children's own created music whenever possible in the home-setting. The audiotapes also served the function of preparing the parents for their active participation in the programme.

Teacher Behaviours

During the procedures of the programme, the teacher needed to be constantly thinking ahead formulating realistic new goals for the child, keeping in mind that although the child's performance may have improved, he may not have reached the ultimate level of performance.

Any small sign of progress on the part of the child was met with the teachers' praise, encouragement, and possibly a hug.

Modified holding therapy, in the form of physical restraint, was implemented by the teachers whenever a child engaged in mildly self-abusive behaviors during a music session.

Teachers found it necessary to talk to the children throughout the music session so as to help the child to focus and attend to those tasks that were incorporated within the music programme. Teachers attempted to gauge the level

of their explanation and encouragement with the perceived level of the child's attending behaviour.

Often decisions were made by the teachers regarding which of the child's behaviours to acknowledge: e.g., a child was expected to stand in the circle and sing, but instead he stood outside the circle, and sang for the first time in the music sessions. The teachers would choose to ignore the fact that the child was not in the group formation, and opt to praise the child for singing the song.

Most of all, the teachers needed a genuine desire to work with the children. This teacher characteristic was a critical asset to each participating teacher within the programme. Having an enthusiasm for being with the children, and honestly trying to find ways to help them were powerful facilitative elements within this music intervention programme.

The Research Design

An Orff-based music intervention programme was developed by this writer. The primary thrust of the programme was to facilitate the acquisition and improvement of communication and prosocial behaviour in autistic children.

The music intervention programme was then piloted with three autistic children, with a view to gather pertinent information vis-à-vis any necessary revisions, prior to any broader application of the writer's music intervention programme.

A quasi- single-subject design was used in this study, using base-line, in-programme, and post-programme evaluation to obtain quantitative data.

Anecdotal data, based on the teachers' weekly observations and subjective judgments of the children's progress were combined with the quantitative data to describe the programme's impact.

Instruments and Procedures

The Autism Screening Instrument for Educational Planning

Subtest One of the Autism Screening Instrument for Educational Planning (ASIEP), known as the Autism Behaviour Checklist (ABC), was used to identify children as autistic. The ABC includes observable behaviours which discriminate autistic individuals from members of other special populations; i.e., deaf/blind; emotionally disturbed; mentally retarded (Jenson, 1984).

The ABC utilizes weighted scores to assist in quantifying the obtained data. Following each behaviour descriptor are the weights 1 to 4. If a child exhibits the listed behaviour, the corresponding number was circled by the person completing the form. Behavioural characteristics receiving a score of 4 were interpreted as the highest indicator of autism, whereas a weighted score of 1 represented the lowest indicator of autism. The behavioural characteristics are subdivided into the following five diagnostic categories: (1) sensory; (2) relating; (3) body and object use; (4) language; and (5) social and self-help (Krug, Rosenblum, Almond, & Arick, 1980).

A behavioural profile was plotted for each of the 3 children, based on the observed behaviours and their frequencies. This provided the study with a quantified baseline of negative behavioural characteristics against which to judge future behavioural change. The ABC contains total scores for normal, deaf/blind, severely emotionally disturbed, and mentally retarded populations. Therefore, the scores were quantitatively evaluated by using the provided cutoff points.

Jenson (1984) further explained the implementation of cutoff points in terms of their interpretative potential:

> *...a score of 77 was the mean total score of the autistic individuals in the ABC standardization group. A score of 67 was selected by the authors as a "high probability" cutoff point for the classification of autism. Ninety percent of the standardization group who received a*

score of 68 or higher on the ABC had a previous diagnosis of autism; ninety-five percent of the standardization sample receiving scores of 53 or less were not diagnosed as autistic. The range 54 to 67 provides some confusion in the classification of autism and may represent higher functioning individuals who demonstrated some of the characteristics of autism. (p.76)

Subtest number three of the ASIEP is the Interaction Assessment, which provides a data-based assessment of social interaction between an adult and a child. Social interaction disturbances were interpreted as being characterized by: (1) a lack of expected responses to peers and adults; (2) a lack of co-operation in play; (3) immature responses, or responses only exhibited as a result of strong social cues; (4) an impairment in the ability to play with toys or objects in a chronologically age-appropriate manner; (5) an evidence of stereotypic play with toys and objects (Krug, Rosenblum, Almond, & Arick, 1980).

The observational methodologies used in this study included the following: (1) time sampling; (2) frequency counts of behaviours exhibited by the child during the observational periods; and (3) anecdotal reports. Rather than recording discrete responses, scores obtained from the Interaction Assessment were indicative of general categories of responses. Behaviour sampling was used in the assessment, rather than continuous behavioural scoring. Instead of rating behaviours as isolated experiences, behaviours were scored in accordance with their context; i.e., across three different Adult Present conditions: I. Active Modelling; II. Passive Behaviour; and III. Direct Cues (Krug, Rosenblum, Almond, & Arick, 1980).

Four behavioural areas were evaluated using the Interaction Assessment: (1) Interaction; (2) constructive play; (3) no response; and (4) aggressive negative behaviour. Each assessment had a duration of 12 minutes across the three Adult Present conditions.

Each of the child's responses to the Adult Present were coded as either an Interaction (responds, initiates, touches, or complies), Constructive Independent

Play, No Response (self-stimulation, self-abuse, no observable behaviour), or Aggressive-Negative (tantrums, hits, kicks, cries, whines). A profile was plotted as a representation of the student's interacting/reacting behaviour to the Adult Present, based on the observed student/adult interaction effects during 48, 15-second observation periods throughout the 12-minute assessment. Results from the profile provided: (1) a summary of the recorded interaction between the child and an adult; and (2) over a period of repeated measurements, an indication of the degree of behavioural change exhibited by the child, specifically in terms of his social relatedness.

a. Validity and reliability of the ASIEP

The ASIEP has undergone extensive validity and reliability studies with autistic children, and has been found to have demonstrated effectiveness in the areas of diagnosis, individualized programme writing, and placement (Krug, Rosenblum, Almond, & Arick,1980).

Jenson (1984) reported that the concurrent validity of the ABC was established by the comparison of previously diagnosed autistic individuals with deaf/blind, severely emotionally disturbed, and mentally retarded non-autistic individuals. The total ABC scores for the autistic sample were significantly different from the ABC scores of the non-autistic special population sample.

Split-half reliability, inter-rater reliability, and test-retest reliability of both subtests one (Autism Behaviour Checklist) and subtest three (Interaction Assessment) of the Autism Screening Instrument for Educational Planning (ASIEP) have been reported as being well within an acceptable range (Krug, Rosenblum, Almond, & Arick, 1980).

In an independent study, Jenson (1984) reported an interrater and split-half reliability coefficients of .95 and .87 respectively.

In summary, Jenson (1984) has described the ASIEP as a valuable diagnostic and screening device for autistic children for the following four reasons:

1. The ASIEP provides several quantitative comparisons between autistic samples and non-autistic/handicapped individuals;
2. Behavioural observation is coupled with normative testing across all subtests in the ASIEP;
3. The ASIEP provides a clear demarcation score and range which facilitates an accurate classification of autism; and
4. Depending on the assessment requirements, all or only selected subtests of the ASIEP may be administered at the discretion of the clinician.

Although future work is required vis-à-vis more objective and independent research on the validity and reliability of the ASIEP, Jenson (1984) believes ..."the ASIEP is a major contribution to the assessment of autistic children" (p.81).

Observer Training

The two female observers underwent continuous training over the course of the investigation. Videotapes of the Interaction Assessments (ASIEP) were shown in periodic retraining sessions, at which time the behavioural categories were further discussed. The observers rated the social interaction patterns of each of the 3 children, and received feedback pertinent to the accuracy of their observations (i.e., adherence to the original codes). The feedback contained the extent to which observers correctly used the original definitions for scoring behaviour.

The observation and recording of behaviours

In an effort to minimize bias, rating errors, and contamination, the following precautions were taken:

1. The observational task was made as objective as possible; that is, the 2 observers were not expected to make any high-level inferences.
2. The 2 observers were trained to a high level of objectivity and reliability; and retrained as necessary to avoid "observer drift".

In order to measure the correspondence between how each child behaved during the observational period and the 'observers' data, a criterion was set which was based on the consensus of the 2 observers' data that a behaviour had or had not occurred. The method used for estimating interobserver agreement was the frequency ratio, (that is, the ratio of agreements to the sum of agreements and disagreements), which has been used to compute agreement when comparisons are made between the totals of two observers recording behaviours independently. The ratio is a reflection of how close the two totals fell within each other. Although there is no way of knowing that two observers agreed upon a particular instance of autistic behavioural features, this method served as a guideline that the observers did generally agree.

The acceptable level of agreement was at the .80 level.

Once the reliability coefficients indicated that the acceptable level of agreement had been reached, all of the Interaction Assessments (with the exclusion of the post-intervention assessments) were then coded on the same occasion. This was done in an effort to avoid the effects of the passage of time. However, the post-intervention Interaction Assessments were coded 22 days following the original coding date. Therefore, it was necessary to have another training period before the commencement of coding the post-intervention Interaction Assessments. Results

of the frequency ratio coefficients are reported in Table 2. The acceptable level of agreement was at the .80 level.

TABLE 1

Interobserver Reliabilities: Interaction Assessment

	Beginning of Training	End of Training
Interaction Score	.63	.93
Constructive Independent Play Score	.53	1.00
No Response Score	.85	.95
Aggressive Negative Score	.50	1.00

TABLE 2

Post-Intervention Interobserver Reliabilities: Interaction Assessment

	Beginning of Training	End of Training
Interaction Score	.90	.80
Constructive Independent Play Score	.77	.93
No Response Score	.40	.90
Aggressive Negative Score	.50	1.00

Interrater reliability coefficients of the Social Scores obtained by each subject in the Interaction Assessment (1980) are reported in Table 3. The method used to calculate the interobserver agreement was the frequency ratio.

TABLE 3

Interrater Reliability Coefficients of the Obtained Social Scores

	2 Oct.	3 Oct.	15 Oct.	6 Nov.	10 Dec.	11 Dec.	12 Jan
M:	.96	.93	.94	.95	.96	.98	.96
H:	.97	.95	.94	.89	.97	.86	.89
L:	1.00	.86	1.00	.93	.95	.97	.95

CHAPTER V

FINDINGS OF THE STUDY

The purpose of the study was twofold: (a) to pilot the writer's music intervention programme; and (b) to determine the programme's impact on the prosocial behaviour of the 3 autistic children who made up the sample. Presented in this chapter are the results of the analysis of the data collected in the study. The data consisted of: (a) the parental responses to the Autism-Behaviour Checklist of ASIEP at the four designated data collection points; (b) the scores of each individual child on the Interaction Assessment of ASIEP at the seven designated data collection points; and (c) the anecdotal data from the log books of the three instructors, which involved a detailed examination of the social interaction patterns of each of the 3 children over the course of the entire study.

The analysis of the data is presented in the following manner: (a) the quantitative data, involving scores for each of the five ABC domains and the frequency of occurrence of each of the three Interaction Assessment behavioural variables; and (b) the qualitative data, involving subjective evaluations of each child's progress during the course of the intervention.

Additional descriptive data obtained with the ABC is presented at the conclusion of this chapter.

Quantitative Data

Research questions 1 and 2 which were posed in Chapter I are restated, and the answers to these two research questions are provided via the analysis of the quantitative data.

1. *Will there be clinically significant improvements in the levels of verbal and non-verbal communication with parents and Significant Others, as measured by Subtest One, the Autism Behaviour Checklist (ABC) of the ASIEP?*

The results of the ABC totals for each child are reported in Figure 1. In the ABC, high scores are indicative of high levels of autistic behaviour; consequently declining scores over time are indicative of positive change.

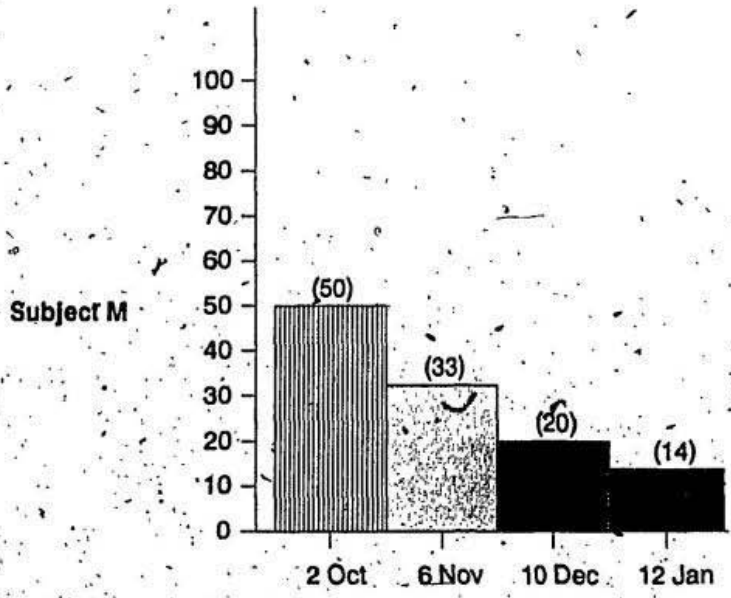
As shown in Figure 1, subject M presented a continuous downward score throughout the duration of this study. The scores of subject H were indicative of a downward trend, while Subject L showed downward scores until the posttest, at which time his father completed the parental response form for the first time in this study.

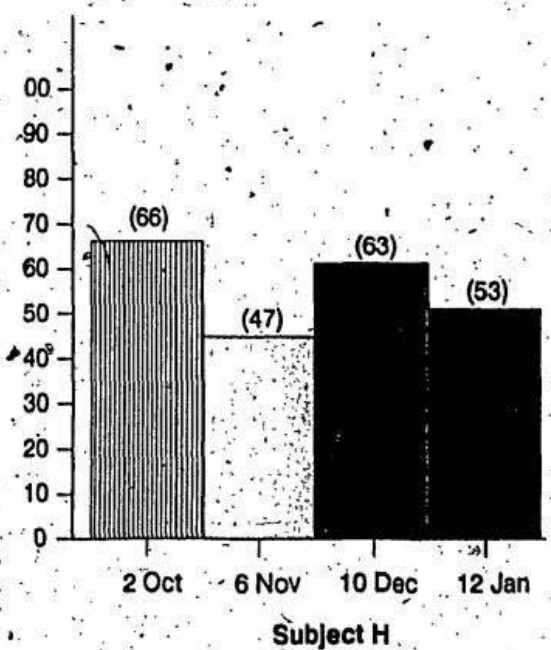
The ABC yields a separate score in five categories; namely, (a) Sensory; (b) Relating; (c) Body and object use; (d) Language; and (e) Social and self-help. Profiles were plotted for each child per category over the duration of the study. The scores in the Sensory category for each child are reported in Figure 2. Subject H's scores indicated a slight declining trend within this category. Subject L showed a sharp progress during the third and fourth assessments, but then returned to base-line level at the follow-up assessment. Subject M presented a continuous downward score throughout the study, maintaining the same score over the 4-week non-intervention period.

The scores in the Relating category of the ABC for each child are reported in Figure 3. The scores of subject M were equal at the first two data points, and then continuously decreased. Although subject H's scores decreased over the first two data points, they gradually increased, so that the posttest score was

approximately the same as the pretest score. Subject L presented scores which continuously increased over the duration of the study.

Figure 1: ABC Total Scores





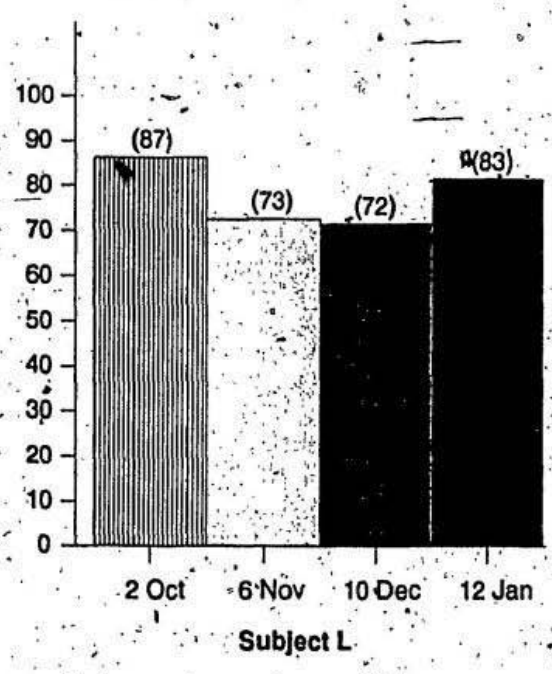
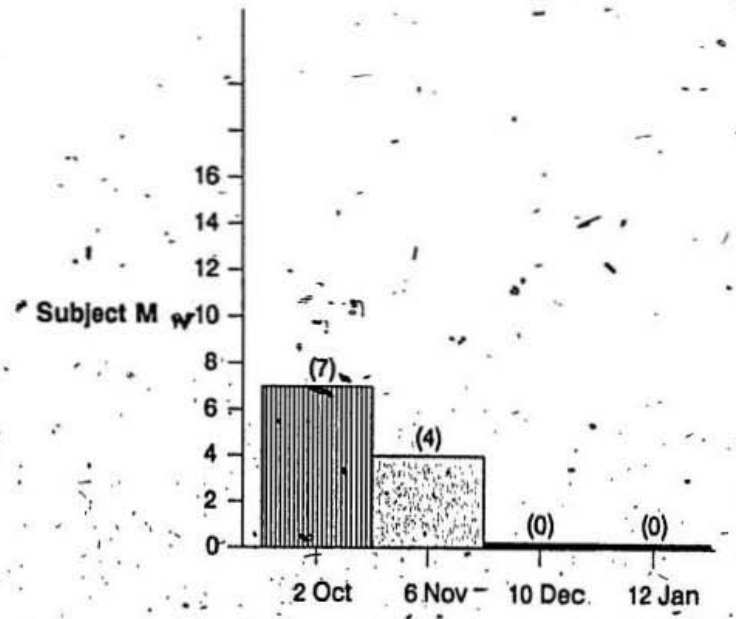
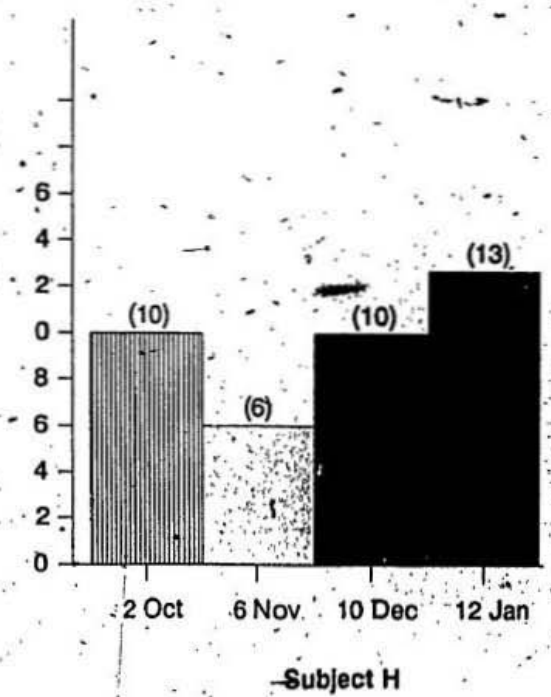


Figure 2: ABC Sensory Scores





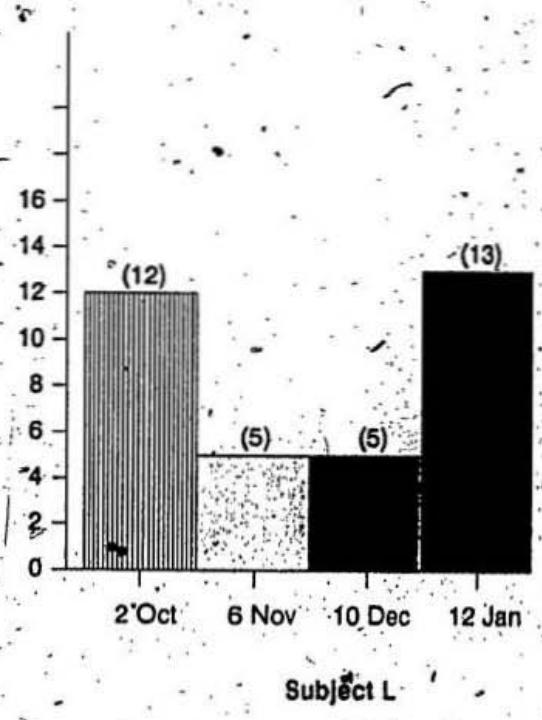
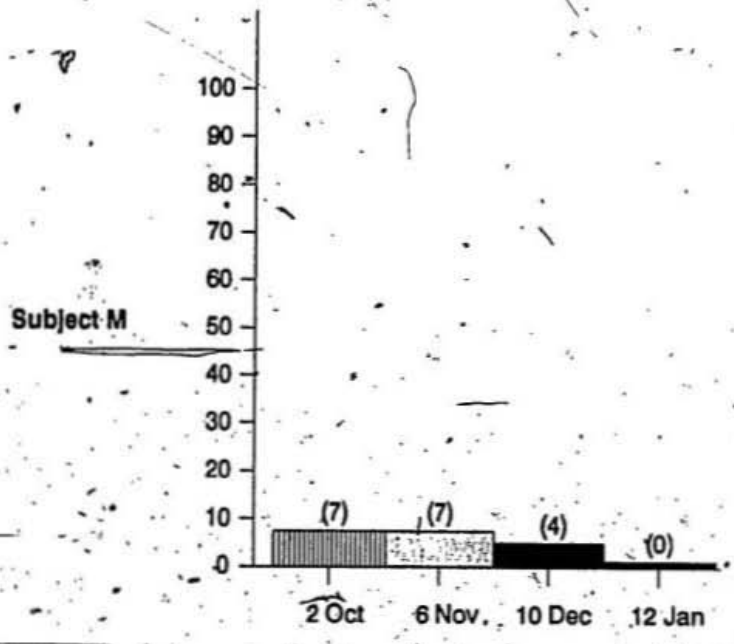
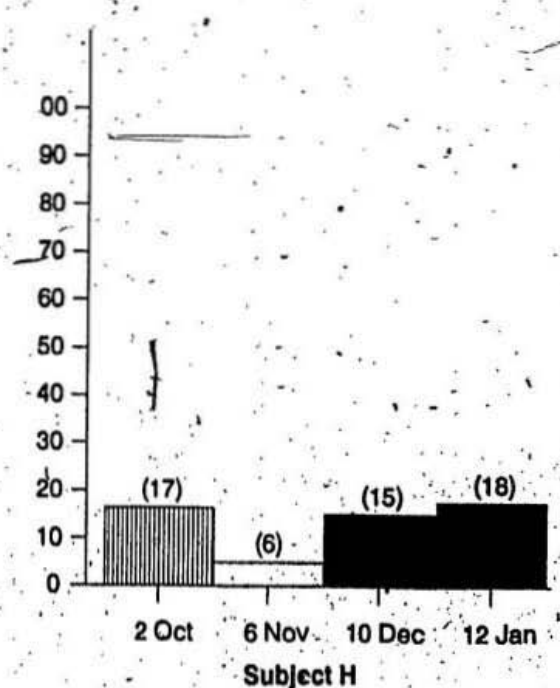
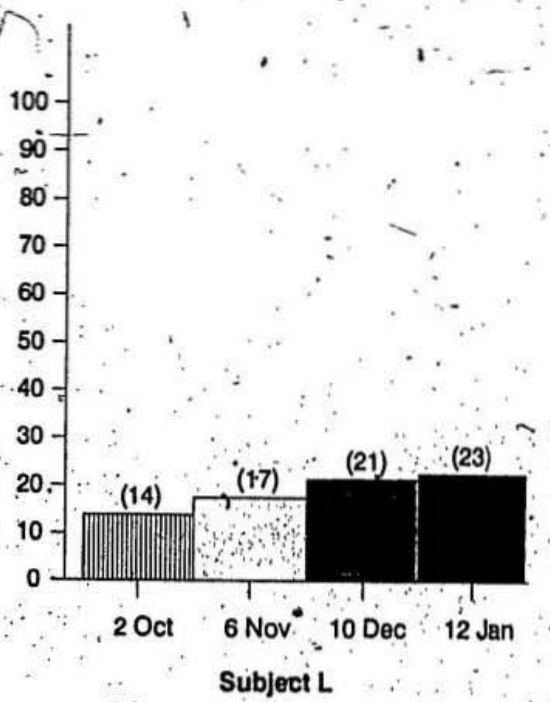


Figure 3: ABC Relating Scores







The scores in the Body and Object Use category of the ABC for each child are reported in Figure 4. The scores of subjects L and M reflected a steady downward trend, with a maintenance of approximately the same final post-programme score over the 4-week follow-up period. The pre- and posttest scores of subject H remained approximately the same.

Each child's scores in the Language category of the ABC are reported in Figure 5. The results were indicative of a downward trend, coupled with maintenance of gains over the 4-week follow-up period for subjects H and M. Subject L yielded continuously decreasing scores through to the end of the follow-up period.

The results of the Social/Self-Help category for each child are reported in Figure 6. The scores of both subjects M and H reflected a downward trend, while the pattern of subject L's scores showed an increasing trend.

Summary of quantitative results pertinent to research question 1

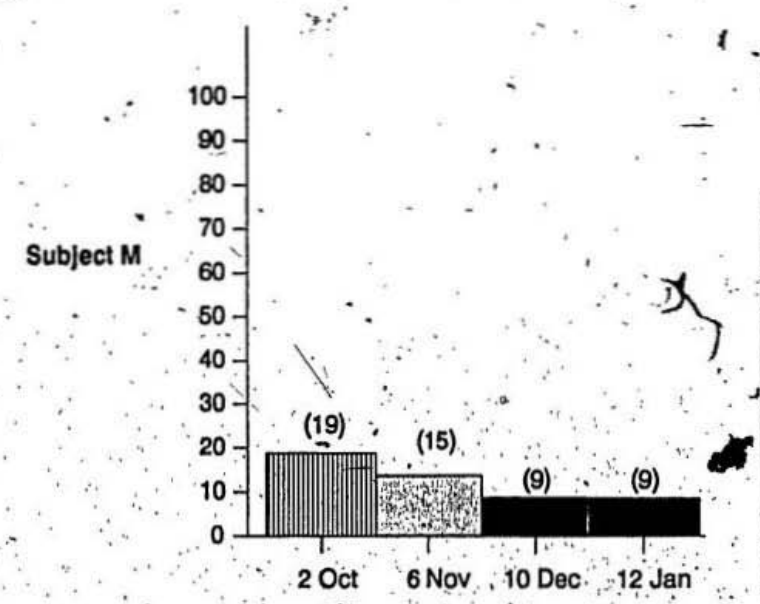
The pre- and posttest totals of the ABC for each child showed a decline over time, indicating a decrease in the frequency of autistic behaviours in each child.

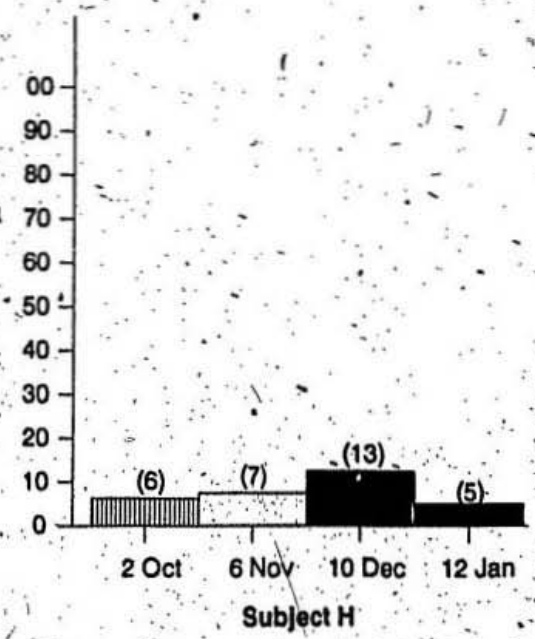
In the Sensory category of the ABC, subject M (the mid-range functioning child) made the most dramatic gain; this significant gain was maintained at follow-up.

Subject M presented a similar profile in the Relating category, but with a steadily decreasing score over the follow-up period.

In the Body and Object Use category of the ABC both subject L (low-functioning child) and subject M (mid-range functioning child) scored continuously lower and maintained the lower scores over the follow-up period.

Figure 4: ABC Body and Object Use Scores





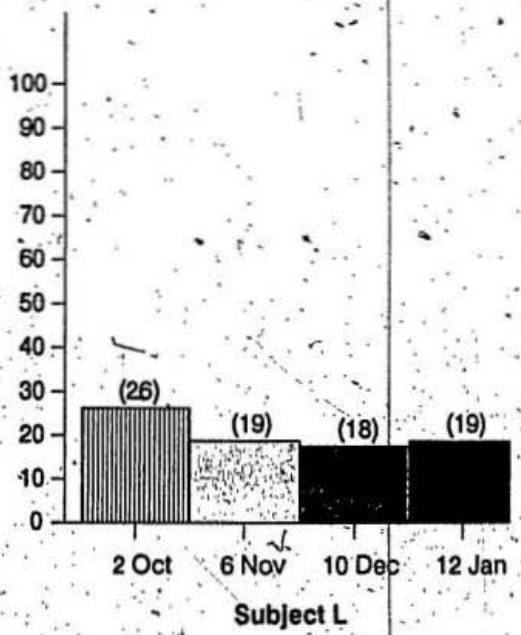
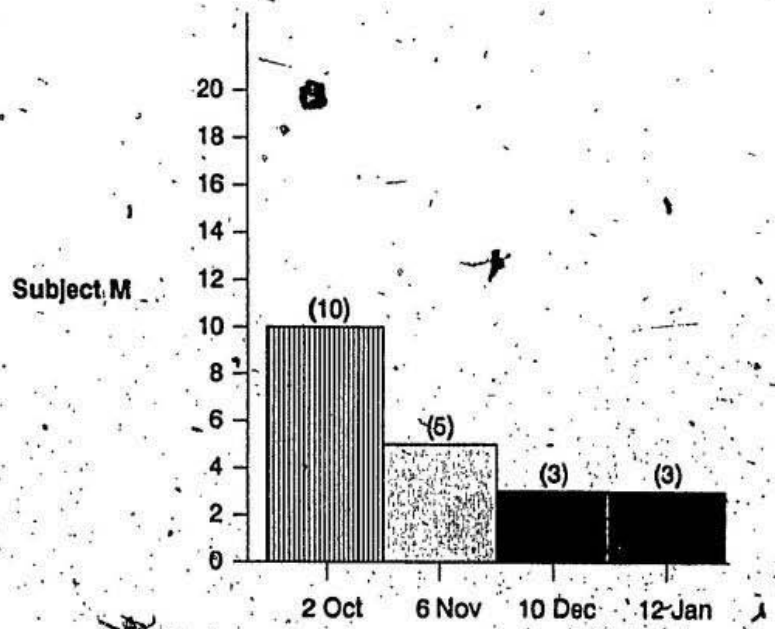
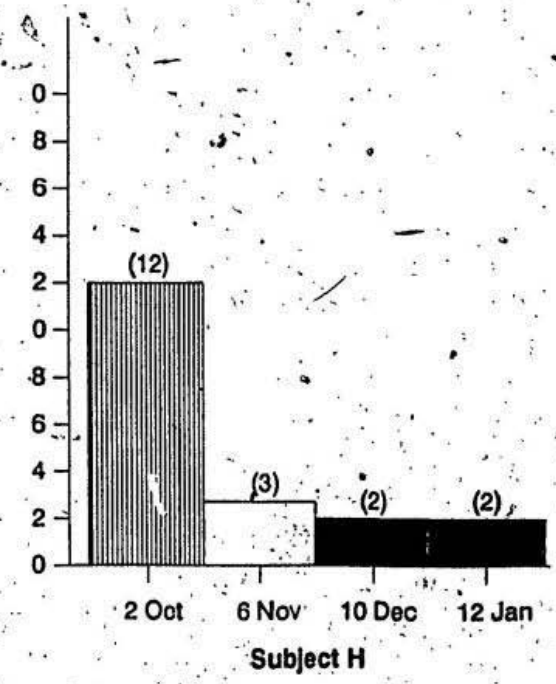


Figure 5: ABC Language Scores





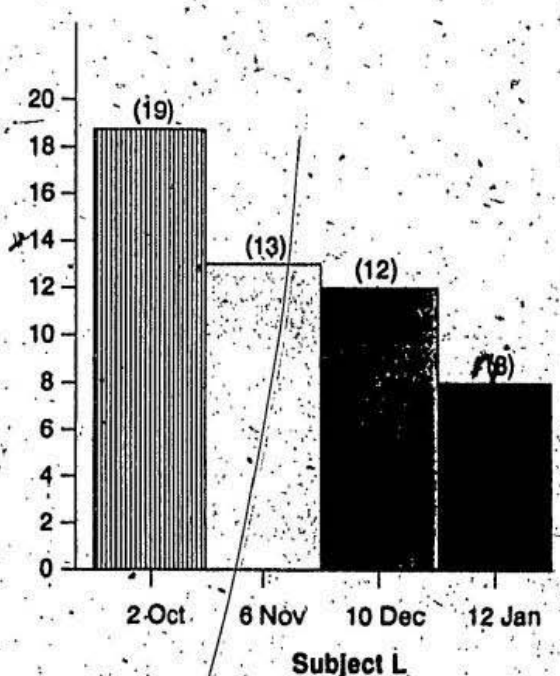
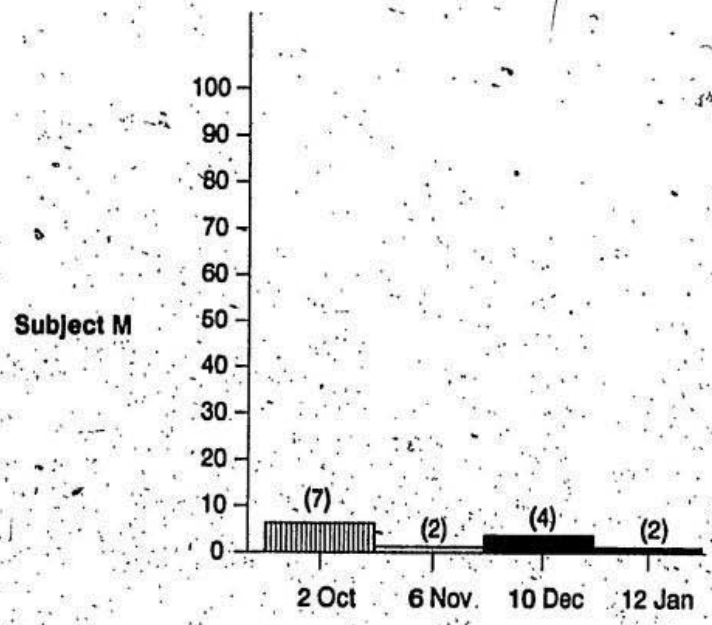
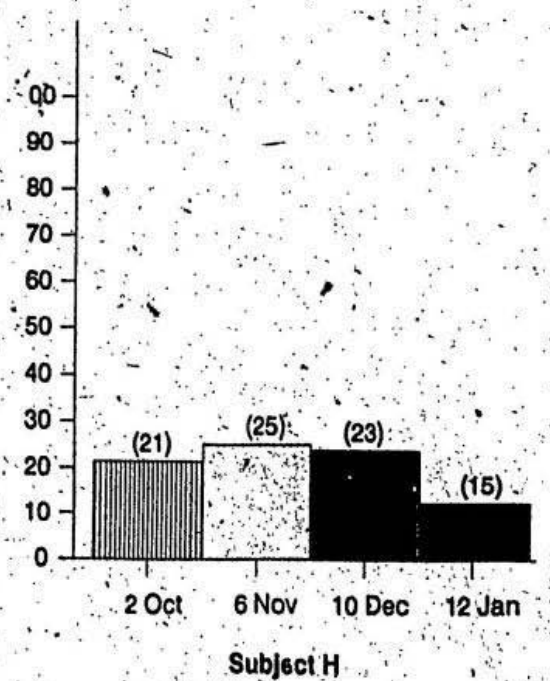
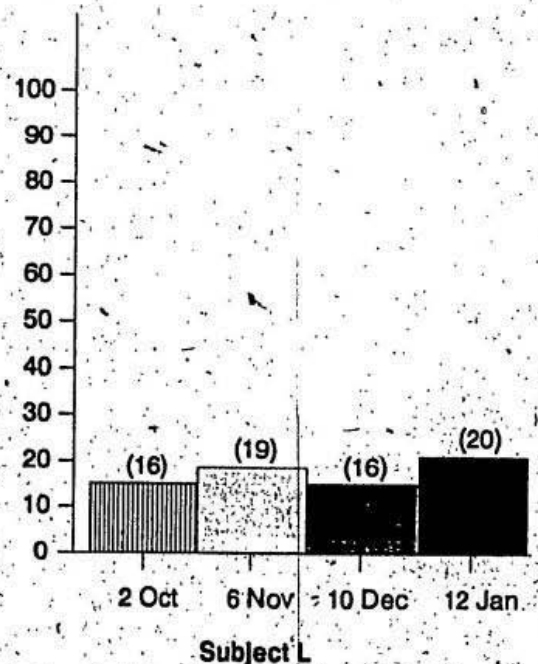


Figure 6: ABC Social/Self-Help Scores







In the same category, the pre- and posttest scores of subject H remained approximately the same.

Posttest scores for all subjects were lower than their pretest scores in the Language category of the ABC, indicating a decrease in the frequency of language-related autistic features for each child within this category.

In the Social/Self-Help category, the scores for subject M (mid-range functioning child) declined slightly over time, while scores for subject H (high-functioning child) stayed relatively the same across the first three assessment points but declined at follow-up. The scores of subject L (low-functioning child) reflected a slight and gradual increase across all assessment points.

2. *Will there be clinically significant improvements in the children's social interaction with an adult, as measured by Subtest Three, the Interaction Assessment of the ASIEP?*

In all, there were five data points for the Interaction Assessment of the ASIEP. All assessments were videotaped and scored at the end of the intervention period. A profile was plotted for each child's scores in each of the three behaviour domains: (a) Interaction; (b) No Response; and (c) Social Scores.

Interaction: Scores for the Interaction category are presented in Figure 7. In this category, a higher score is indicative of a lower frequency of autistic behaviours.

Subject L (low-functioning child) maintained an increased interaction score throughout the first half of the music intervention programme. However, at the end of the intervention his score indicated a slight drop which was held over the follow-up period. Nevertheless, L's final score had marginally increased from the beginning data point.

Subject M (mid-range functioning child) showed a pronounced increase in his interactional trend over the first half of the music intervention programme. M also presented a decline in his interactional pattern at the end of the programme, which he maintained throughout the follow-up period.

Subject H's (high-functioning child) interaction score dropped after 2-weeks into the music intervention. At the mid-way point he returned to base-line, but fell-off again at the end of the programme. After the follow-up period, H's interactional score had slightly increased.

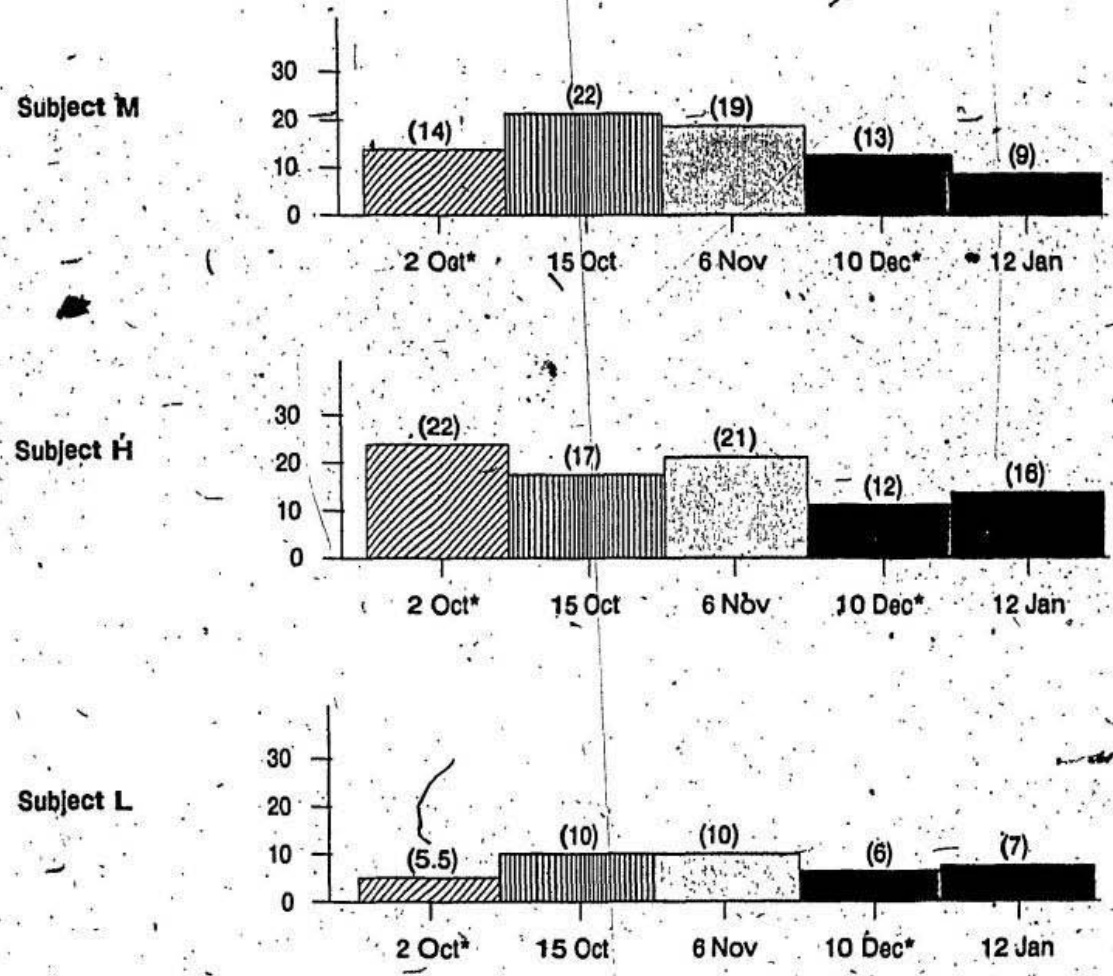
No Response: Each child's scores in the No Response category of the Interaction Assessment are reported in Figure 8. In this category, a lower score reflects lower frequency of autistic behaviours.

Subject M's (mid-range functioning child) No Response score indicated a pronounced decline in this behavioural category over the first 2-weeks of the programme. However, M returned to base-line at the mid-way data collection point of the study. M's scores indicated a sharp increase in his No Response patterns at the end of the programme. He dropped back to base-line at the end of the follow-up period.

Subject L (low-functioning child) maintained the same No Response scores over the first 2-weeks of the programme. His scores indicated a pronounced decline in trend at the mid-way point, and resurged to be slightly higher at the end of the intervention and follow-up periods than at the onset of the data collection.

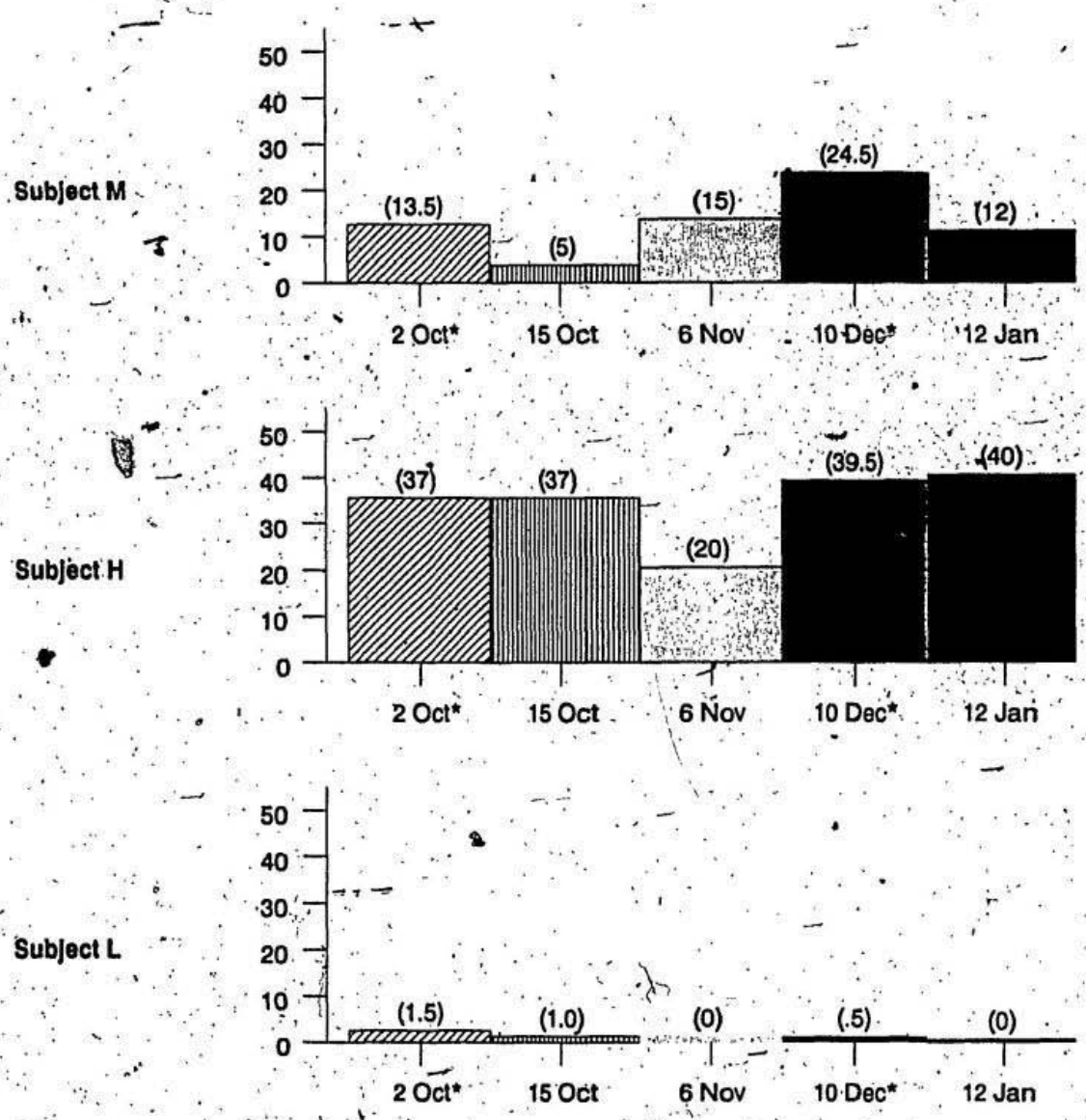
The differences in Subject H's (high-functioning child) No Response trend were barely negligible. In fact, H's No Response pattern indicated only a slight wavering from base-line.

Figure 7: ASIEP (3) Interaction Scores



*the mean of 2 consecutive days of data collection.

Figure 8: ASIEP (3) No Response Scores



Social: The Social Score for each child is calculated by using the following two-step formula provided in the instructions on the Interaction Assessment of the ASIEP:

48 - Interaction Score = x ;

x + No Response Score = Social Score.

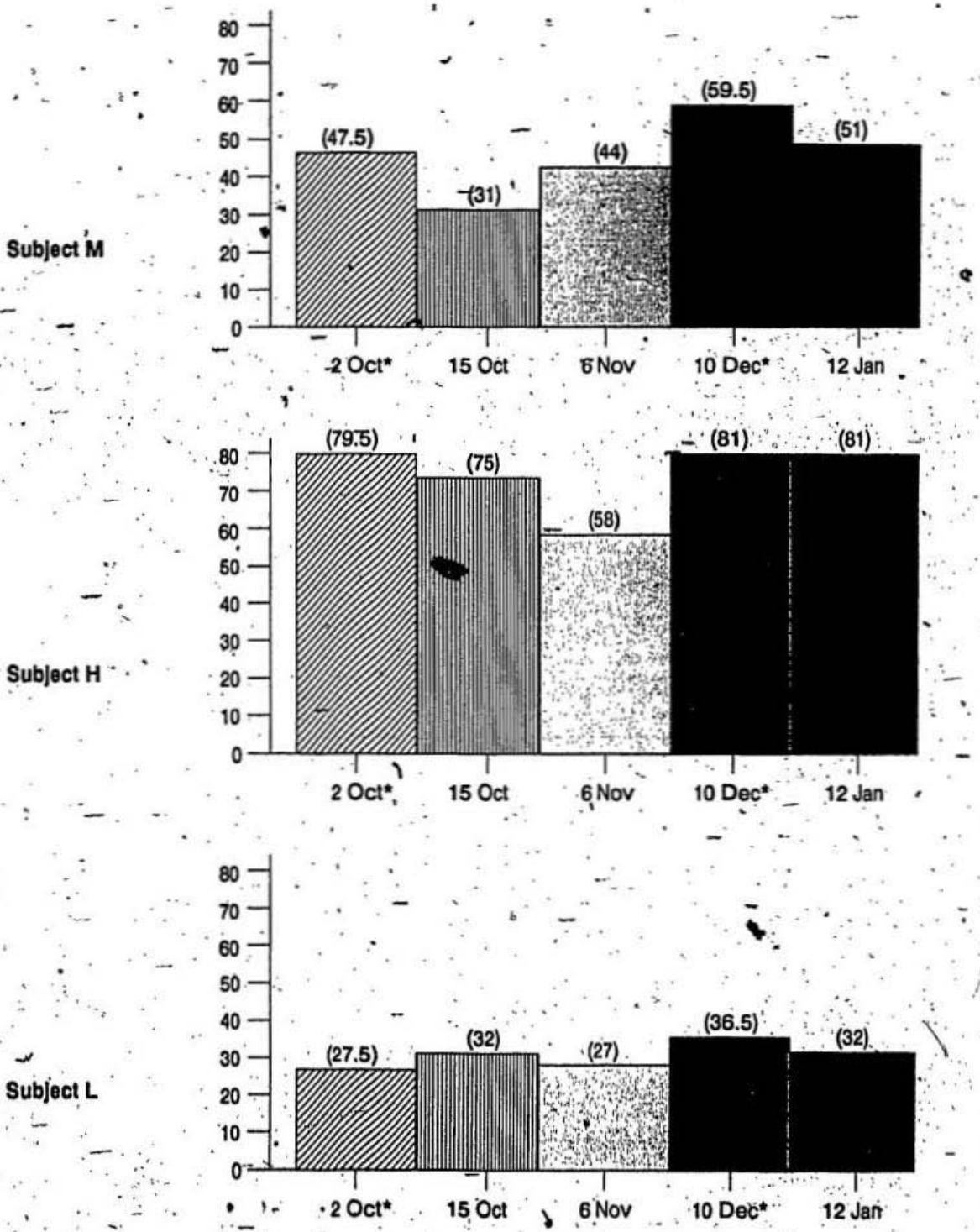
A lower Social Score is indicative of a lower frequency of autistic behaviours. Each child's Social Score over the duration of the study is reported in Figure 9.

Subject **M** (mid-range functioning child) showed a pronounced decline in his Social Score over the first 2-weeks of the music programme. However, M returned very close to base-line at the mid-way point, and exceeded his base-line score by the end of the programme. His score fell off somewhat after the follow-up period, but still indicated an increase over his initial Social Score.

Subject **L** (low-functioning child) presented a slight decrease in his Social Score over the first 2-weeks of the programme. By the mid-way point, however, L's score was indicative of a pronounced decline in his behavioural trend within this category. Nevertheless, at the end of the programme L's score resurged to very slightly exceed his initial Social Score. This trend was maintained over the follow-up period.

Subject **M's** (mid-range functioning child) Social Score slightly increased over the beginning 2-weeks of the programme. However, the scores dropped back to base-line at the mid-way point of the data collection. By the end of the programme, M's scores indicated a pronounced increase in his behavioural trend within this category, which fell-off only slightly after the follow-up period.

Figure 9: ASIEP (3) Social Scores



Summary of quantitative results pertinent to research question 2

Both Subject M (mid-range functioning child) and Subject L (low-functioning child) showed moderate improvements in their interaction patterns over the first half of the music intervention. Both showed a slight decline in this trend by the end of the programme and after the follow-up period.

Subject H (high-functioning child) presented a regression in his social interactional pattern over the first 2-weeks of the programme. However, he then returned to base-line at the mid-way point of the data collection. H's scores again dropped off at the end of the intervention, and only slightly improved after the follow-up period.

Within the No response category, Subject L (low-functioning child) presented a pronounced improvement in his behavioural pattern at the mid-way point of the intervention. This trend was not maintained, however, as his scores indicated a clear-cut increase at the end of the programme. L's behavioural trend was maintained over the follow-up period.

Subject M (mid-range functioning child) showed a pronounced improvement in his No Response pattern after the first 2-weeks of the intervention. M's No response scores returned to base-line at the mid-way point, but made a sharp decline over the follow-up period.

Subject H (high-functioning child) made very little change in his No Response Scores over the course of the study.

In the Social Score category, Subject M (mid-range functioning child) showed an improvement over the first 2-weeks of the programme, but then dropped off again by the end of the intervention. His score decreased only slightly after the follow-up period.

Subject L (low-functioning child) presented a pronounced improvement in his Social Score trend at the mid-way point of the intervention. He returned to base-line at the end of the programme and maintained the same behavioural pattern over the follow-up period.

Subject H (high-functioning child) showed a slight increase in his Social Score over the first 2-weeks of the programme. He returned to base-line at the mid-way point of the data collection, made a sharp increase in score at the end of the intervention, and decreased slightly after the follow-up period. In terms of behavioural trends, the ASIEP graphs did not clearly depict any discernible patterns with regard to the Interaction, No Response, and Social Score categories. However, the qualitative data in the following section seems to bear out the conclusion that changes did occur with each boy within those categories. This suggests that the ASIEP instrument may not have been sensitive enough to pick up the changes which seemed to have occurred.

Qualitative Data

This section is based upon the analysis of anecdotal data compiled from the research log books of the three instructors in the programme. The data were analyzed to answer research question three, which was posed in Chapter I. The question is restated below:

3. *Will there be clinically significant improvements in the social interaction patterns of each child, as noted in the analysis of the anecdotal data?*

The Tinbergen and Tinbergen (1972) model was used as the thematic frame of reference by which to extrapolate any change in the social interaction patterns of each child.

CLUSTER #1 - Playful Interaction With Touching / Playful Interaction / Friendly Interaction: From the beginning of the music programme to its completion, Subject H (the high-functioning child) showed a preference for objects rather than people. Any playful interaction with touching in Subject H's case would not be initiated by him, but rather would be commanded by him; e.g., "Swing me. Lift me up." Typically, these commands would be directed to his mother and the teachers, rather than to the other children. H spent very little time in the behavioural categories of this cluster.

Initially, subject M (the mid-range functioning child) was a little hesitant to interact with the teachers. He presented a lot of "flapping" behaviour, and often tried to run away. However, as the programme progressed, M spent an ever increasing amount of time exhibiting playful interaction with touching, especially with his family and the teachers. At the programme's end, M was also occasionally reaching out towards the other autistic children participating in the study.

Subject L (the low-functioning child) was extremely passive. At the start of the programme, L only tolerated touch from the teachers. L steadily increased his tolerance level for playful interaction with touch, so that by the programme's end although he did not initiate the interaction, he responded by smiling, laughing, or making his "happy" sounds.

Both subjects M (mid-range functioning child) and L (low-range functioning child) showed an increase in this behaviour throughout the programme. Important to note, however, is that the base-line for each child was different - e.g., M was hyperactive and L was extremely passive. Nevertheless, the two boys spent an increased amount of time within the behavioural categories of this cluster throughout the programme.

Subject H (high-functioning child) presented very little improvement within this behavioural cluster. In fact, from the seventh week through to the end of the tenth week, H indicated less and less of a tolerance for any playful interaction.

All three children, each with respect to his own social interaction base-line, showed a consistently increased frequency of friendly interactions with those present within the programme. From time to time, each child became upset during the music session, which then altered the probability of any friendly interaction. However, overall, each child spent more and more time exhibiting this behavioural variable.

Approach (Increase Proximity): Both Subjects M (mid-range child) and L (low-functioning child) showed more and more of a tendency to approach the teachers and family members participating in the programme. M was very obvious in this behaviour, perhaps due to his hyperactivity. L, on the other hand, became more and more receptive to help with instrumental work, and to entering into any musical dances and games.

Subject H (high-functioning) showed a real enthusiasm for the mirror movement component, the Orff ensembles, and the dances and games at the beginning of the programme. However, as he became more accustomed to the format of the sessions, H spent less and less time within this behavioural category.

CLUSTER #2 - Beaming Smile / Uninhibited Smile / Half Smile / Slight Curving up of Corners of the Mouth: From the first moment that Subject L (low-functioning child) heard the sounds coming from the xylophone which he was playing; he gave a big, beaming smile. This was consistently the case throughout the programme, as he took turns playing on the metalophones, the glockenspiels, and even the tambour. L's typically increasing response to the sounds of the instruments was a beaming smile.

Neither of the other 2 boys spent very much time within this behavioural category.

As subject M (mid-range functioning child) became more familiar with his surroundings, the participants in the programme, and the expectations presented to him by others, he seemed to relax. M spent an ever increasing amount of time throughout the programme presenting an uninhibited smile.

Subjects L and H did not spend much time within this category.

However, all three of the boys showed an increased frequency in presenting a half smile. As each child became more familiar with (a) the format of the music sessions; and (b) the people who were participating; he tended to spend more time within this behavioural category of Cluster #2.

There was a difficulty in pinpointing any clear-cut change in the frequency of slightly curving up the corners of the mouth amongst the three boys. Very often this behavioural characteristic may have been perceived as a beginning stage of either a beaming, uninhibited, or half smile. Therefore, this particular element of Cluster #2 was not applicable to the 3 boys with this study.

Subject M (mid-range functioning child) did not tend to exhibit this particular behavioural feature.

Eye Contact: Subject M (mid-range functioning child) stands out in this behavioural category as being the child who not only tolerated eye contact, but seemed to demand it of others. The frequency of this behaviour consistently increased over the course of the programme.

Subject L (low-functioning child) also spent increasingly more time within this behavioural category. Although often hesitant at first, L gradually sought and tolerated eye contact more and more.

Subject H (high-functioning child) showed very little change in this particular behavioural feature. He neither sought out nor tolerated eye contact.

Blank Expression: At the beginning of the programme, Subject L (low-functioning child) often exhibited a blank expression. There was a noticeable decrease in the amount of time spent by L within this category over the course of the study. This decrease was perceived as being indicative of an increased readiness on L's part to (a) tolerate the group setting, and (b) to participate within the group.

Neither of the other two boys showed a noticeable tendency toward this behavioural characteristic over the duration of the programme.

Looking Past a Person's Eyes: Subject L (low-functioning child) showed a marked tendency towards this behavioural feature at the onset of the music programme. However, as he invested more of himself particularly in the Orff ensemble components of the music programme, there was a decrease in the amount of time spent by L in this behavioural category.

Subject H (high-functioning child) also tended to look past a person's eyes at the starting point of the programme. However, the frequency of this behavioural characteristic remained approximately fixed throughout the course of the programme. Any slight change in H's trend of behaviour within this category was in an upward direction.

Subject M (mid-range functioning child) consistently spent a small amount of time within this behavioural category.

For the purposes of this study, a decreased frequency of looking past a person's eyes was interpreted as (a) an increased tolerance of the group setting, and (b) a means of enhancing the interactional patterns of group members, particularly during the ensemble/improvisational components of the programme.

Partial Closing of the Eyes: Subject L (low-functioning child) exhibited this behaviour frequently at the onset of the music programme. However, the frequency of this behavioural characteristic steadily diminished over the course of the programme.

L's initial tendency of partially closing his eyes was seen as his response to the increased amount of sensory stimulation provided to him within the programme. The decreased frequency of this behaviour suggested L's heightened tolerance of sensory input.

Neither of the other two boys spent a noticeable amount of time within this behavioural category.

Gaze Aversion: Both Subjects H (high-functioning child) and L (low-functioning child) presented a high frequency of this behavioural feature at the beginning of the music programme. L gradually exhibited a decrease in this behaviour, whereas H showed a slight increase in the amount of time spent in this behavioural category.

Subject M (mid-range functioning child) rarely exhibited gaze aversion throughout the course of the study.

CLUSTER #3 - Turning Away Head \ Turning Away of Whole Body: Initially, both Subjects H (high-functioning child) and L (low-functioning child) showed a marked tendency to turn away their heads from others. However, L showed a decrease in the frequency of this behaviour over the duration of the programme, and H remained approximately constant, with a tendency in the seventh through to the tenth week towards an increased frequency in this behaviour.

Although Subject M (mid-range functioning child) presented a low frequency of this behaviour at the onset of the study, he spent approximately the same amount of time within this behavioural category through the duration of the programme.

Subject H (high-functioning child) stands out in this behavioural cluster as being the child who most frequently exhibited a turning away of the whole body from the very start of the programme. Although there was a decrease in H's tendency towards this behaviour over the first three weeks of the music programme, he rebounded at the mid-way point of the study, and presented an increase in the frequency of this behaviour from weeks seven through to ten.

Both Subjects M (mid-range functioning child) and L (low-functioning child) showed some tendency towards this behaviour at the onset of the music sessions. However, both of these children spent less and less time turning away their bodies over the course of the study.

A turning away of the whole body - rather than a turning of the head - was interpreted as being an indicator of the boys' decreased tolerance for the group setting and the level of sensory stimulation being provvided to them.

Moving Away (Decrease Proximity): Although Subject M (mid-range functioning child) exhibited a high frequency of this behaviour at the beginning of the study, he less and less time within this behavioural category over the course of the programme.

Subject H (high-functioning child) did not present this behavioural characteristic initially, but over the 10-week period showed a marked increase in the frequency of moving away from others within the programme.

Subject L (low-functioning child) did not noticeably exhibit this behaviour.

No Response to Auditory Input: None of the children within this study spent any time within this behavioural category, either before, during, or 4-weeks after the programme.

Stereotypes: Subject M (mid-range functioning child) exhibited "flapping"

behaviour at the onset of the study. This behaviour steadily decreased over the course of the music programme.

Subject H (high-functioning child) presented a "shaking of the head" behaviour at the beginning of the programme. The frequency of this behaviour remained constant throughout the study.

Subject L (low-functioning child) did not exhibit any noticeable behavioural feature within this category.

Summary of qualitative results pertinent to research question 3

At the end of the music intervention programme, Subject L (low-functioning child) was spending significantly more time in the upper portion of the Tinbergen and Tinbergen (1972) Social Behaviour in Children Scale, as compared with the social interaction patterns which he presented at the onset of the study.

Although not as consistent as Subject L, Subject M (mid-range functioning child) also showed social improvement over the course of this investigation. Following the 10-week music intervention he exhibited a decreased tendency towards the behavioural categories contained within the lower portion of the Tinbergen and Tinbergen (1972) model.

Subject H (high-functioning child) presented a minimal amount of behavioural change throughout the music programme. The change in H's trend of social interaction was judged to be more towards an increased amount of time spent in the lower portion of the Tinbergen and Tinbergen (1972) Social Behaviour in Children Scale.

CHAPTER VI

SUMMARY, INTERPRETATION, AND RECOMMENDATIONS

In this chapter, a summary of the complete study is presented. Contained in the chapter are: (a) a restatement of the problem; (b) a summary of the procedure; (c) a description of the method of data analysis; (d) a restatement of the research questions; (e) a summary and discussion of specific findings in relation to programme implementation issues; and (f) recommendations for further research with the programme.

Restatement of the Problem

The question of self-sufficiency must eventually be faced by either the Significant Others of autistic individuals, or the autistic person, him/herself. As autistic individuals mature, a lack of communication and socialization skills may pose a significant obstacle to their successful integration into society.

The results of research indicate that autistic children often exhibit unusual responses (and sometimes talent) to musical stimuli (Bergman & Escalona, 1949; Churchill, Alpern, & DeMyer, 1971; DesLauriers & Carlson, 1969; Despert, 1947; Euper, 1968; Kanner, 1943; Pronovost, 1961; Rimland, 1964; Ritvo & Provence, 1953; Saperston, 1973; Sherwin, 1953; Schulman, 1963; Vetter, 1970; Wing, 1966).

The primary purpose of this study was to develop a music intervention programme aimed at facilitating the acquisition and/or improvement of communication (both verbal and non-verbal) and socialization skills in autistic children. The piloting of this programme with 3 autistic children representing three different developmental levels (i.e., high-functioning; mid-range functioning; and low-functioning)

was to assess the potential impact of the music intervention programme on autistic children.

Specifically, this study attempted to answer two basic questions:

- Will this writer's music intervention programme generally be found to be an effective therapeutic method to facilitate the acquisition and/or improvement of communication and socialization skills of autistic children?
- Will this writer's music intervention programme have a differential effect on high-functioning, mid-range functioning, and low-functioning autistic children?

Review of the Procedures

Over a 10-week period from October 3, 1987 through to December 7, 1987, the 3 autistic children met each week for a 60-minute group music therapy session. Additionally, each child received a 30-minute individual session per week.

In all, there were four data points during this investigation using the ABC: (a) pre-intervention; (b) at the mid-way point of the music intervention programme; (c) at the end of the music intervention programme; and (d) at the end of a 4-week follow-up period.

The Interaction Assessment was given at five data collection points during this study: (a) prior to the intervention; (b) at the end of 2-weeks of intervention; (c) at the mid-way point of the programme; (d) at the end of the music intervention (with a different Adult Present on the second day); and (e) at the end of a 4-week follow-up period. At the pre, midway and end-of-intervention points, the Interaction Assessment was administered twice over two consecutive days. During data analysis, scores for each of the two consecutive assessments were averaged to obtain one score for each assessment point.

The sample in this study consisted of 3 boys, ages 7-, 9-, and 11-years. Each of the children had been previously diagnosed as autistic.

Method of Data Analysis

Using the data obtained from the ABC, behavioural profiles were plotted for each of the autistic children over the duration of the study. Subsequently, scores from each of the five categories of the ABC were reported for each child; namely, (a) a Sensory Score, (b) a Relating Score, (c) a Body and Object Use score, (d) a Language score, and (e) a Social/Self-Help score.

Results of the Interaction Assessment (1980) provided the following: (a) an interaction profile for each child for the duration of the study; (b) No Response scores of each child throughout the investigation; and (c) a Social Score profile for each of the 3 children over the duration of the investigation.

Analysis of the above quantitative data was supplemented with analysis of recorded anecdotes from each of the three instructors.

Research Questions and Specific Findings

The study examined three research questions. Each question is restated, followed by the specific findings related to it.

1. *Will there be clinically significant improvements in the levels of verbal and non-verbal communication of the subjects with parents and Significant Others, as measured by Subtest One, the Autism Behaviour Checklist (ABC) of the ASIEP?*
2. *Will there be clinically significant improvements in the levels of social interaction between the subjects and the Adult Present, as measured by Subtest Three (Interaction Assessment) of the ASIEP?*

3. *Will there be clinically significant improvements in the social interaction patterns of each child, as noted in the analysis of the anecdotal data?*

The results of the ABC Total Scores indicated lower posttest scores than pretest scores for each of the children in the sample. The lower scores reflect a decrease in the frequency of autistic behaviours. Subject M (mid-range functioning child) presented a consistent improvement in behavioural pattern in this category.

In examining the individuals behavioural categories of the ABC across children, the following striking patterns came into focus:

(a) The mid-range functioning by presented and maintained consistent improvement in the Sensory, Relating, Body and Object Use, Language, and Social/Self-Help behavioural domains;

(b) The low-functioning boy showed clinical improvement in the Sensory, Body and Object Use and Language categories; and

(c) The high-functioning boy presented a marked improvement in the Language category of the ABC. However, most gains made by this child in the remaining behavioural categories showed a decline towards base-line by the end of the follow-up period.

One possible explanation for the behavioural patterns noted for Subjects M and L may be directly related to the actual implementation process of the programme itself. The nature of the implementation was very repetitive in style, which may have more adequately met the needs of these two boys. Additionally, the children received much direct "contact-time" not only with the teachers, but also with their parents and siblings. This extra attention may have been more aligned with the needs of the low- and mid-range functioning boys.

On the other hand, Subject H may have been "slowed down" by the repetition afforded to the three boys throughout the programme. Whereas reiteration was

advantageous to Subjects M and L, if simultaneously may have become boring for Subject H. Likewise, the amount of extra attention from others have been disconcerting to H while experiencing a sense of monotony.

This posed a real problem for the teachers and parents while working in the group sessions throughout the programme. Despite the fact that the variations were listed for each programme component, enrichment for H was difficult to provide while gauging the needs of the other two boys. Having the sense that both M and L were benefitting by the rehearsal and extra attention, yet hypothesizing that H may require added variation and enrichment with less attention, posed a real dilemma for the teachers throughout the programme. Nevertheless, an increase in the variation work combined with a more spontaneous approach to the programme would have been, in all likelihood, a more enriching therapeutic experience for Subject H.

Pertinent to the second research question, the social interactional patterns of the 3 boys, as depicted by the profiles of the Interaction Assessment of the ASIEP, were mixed. Both subjects M and L presented clinical improvements in the Interaction, No Response, and Social Score categories of the ASIEP. However, their behavioural gains tended to regress over the second half of the programme.

Subject H showed no real change in any of these social interction categories.

Interesting to note at this point is that often the gains made by Subjects M and L over the first half of the programme waned off towards the latter part of the intervention. By piloting this programme, the writer gleaned some insight regarding its differential impact on the autistic children within this study.

There were unwritten high expectations of the parents who were participating within this programme. However, in reality, many of the writer's expectations were not met. As a preparatory measure parents were requested to view videotapes

of the music sessions prior to their active participation in the programme. Viewing the videotapes of the music sessions which occurred prior to the parent participation component was specifically setup as a preparatory measure for the parents. In actuality, very few of these tapes were viewed by the parents. Consequently, the parents were generally ill-prepared to enter into the music sessions with the children and the teachers in the seventh week of the programme.

Parents were also expected to be consistently present for the parent-participation component of this programme. Unfortunately, in Subject M's case (mid-range functioning child), the family member participant was rarely the same.

Additionally, the presence of siblings, particularly younger children, was often distracting within the implementation of this programme. The pragmatic suggestion in this regard would be to help to arrange for a form of day-care for the siblings of the autistic children while the parents participate in the music programme.

The teachers reported a real difficulty in experiencing the transitions from having an intensive relationship with the children to playing a more secondary role with them during the final three weeks of the programme. Throughout the parent-participation component, the teachers' roles shifted from directly working with the children to demonstrating to the parents the techniques used within the music sessions. This "phasing-out" period left the teachers feeling a sense of distance from the children.

Superimposed upon this sense of distancing is the difficulty with the parent who is not yet prepared to truly "work" with the autistic child, but rather endeavoured to camouflage the problems which arose within the music sessions. Parental acceptance of the fact that their child is an exceptional child with exceptional needs is critically important to the work with the autistic child within this programme.

Subsequently, the systemic adjustment to the reality of having a family member with an exceptionality plays a crucial role in the overall impact of this programme on the autistic child.

The third research question was addressed by analyzing another segment of the data–the data gathered by the three instructors. Their anecdotal reports described small increments of change which, particularly in the case of Subject L (low-functioning child), were consistent and maintained throughout the programme.

According to the entries in the three research log books, Subject M (mid-range functioning child) made progressive gains throughout the course of the music intervention. However, the steady rotation of Significant Others which he experienced during the parent participation component did not serve to his advantage. Subject H (high-functioning child) made gains during the first weeks of the programme. However, his behavioural gains deteriorated during the final 4-weeks of the music sessions. Subject L (low-range functioning child) made steady, consistent behavioural gains throughout the programme, and he gradually built upon them in subsequent sessions.

Interpretation and Implications of Study Findings

The findings of this study are examined from three perspectives: (a) in terms of previous research on the effects of music on autistic children; (b) in terms of implications for educators and clinical practitioners working with autistic children; and, (c) in terms of implications for further research.

Interpretation Vis-à-Vis Previous Research

The findings of this study support previous research findings that a music intervention programme may be an effective therapeutic method with autistic

children (Blackstock,1978; Campbell, 1975; Frith, 1972; Goldstein, 1964; Mahlberg, 1973; O'Connell, 1974; Saperston, 1973; Stevens & Clark, 1969).

More specifically, the findings of this investigation support the theory that "Orff-Schulwerk" may be an effective treatment method with children diagnosed as autistic (Hollander & Juhrs, 1974; Bitcon & Ponath, 1972); specifically with low- to mid-range functioning autistic children. The findings also provide more credence to the belief that "Orff-Schulwerk" has the potential to "draw-out" even the most severely autistic child to become invested, over a period of time, in a meaningful group experience.

Hudson's (1973) notion that music may be perceived as being a physiologic language has received some support within this study. Although the results offer no real empirical validation of Hudson's proposal, this writer concurs (based on the qualitative data presented) with the belief that music may serve to bridge communication for low- to mid-range functioning autistic children. Hudson's (1973) explanation of the advantages of music therapy with autistic children was that

> *...music can communicate at the more primitive, physiologic level of rhythm, and develop a rapport that may not be attainable with conventional language...(p.139)*

Carl Orff used the term "Elementary Music" to describe the same notion of the unity of music with movement, dance, and speech. This is an "Elementary Music" because it pertains..."to the elements, primeval, rudimentary..." (Hall & Walter, 1956, p.6)

One point that had been reiterated throughout the anecdotal data with reference to Subject L (low-functioning child) was that he very seldom was prepared to leave the music sessions to go home. In fact, he often remained seated on the floor, or became rigid, or (having eventually reached the door-way, would provide an impediment to his exit by grabbing the door jambs, and setting

his foot sideways over the threshold. Another remarkable response from L occurred while he was receiving his back-pats at the end of one of the later music sessions. He looked up to this writer, and then pointed to the glockenspiel. He waited. Upon looking up again, L (who is passive in the extreme) stood up, walked over to the instruments, picked up the glockenspiel, and returned to the floor mat. Smilingly, he then played the instrument while he was receiving the back-pats.

L continuously gestured to take one of the percussion instruments home with him following the music sessions. This 11-year-old boy did not typically reach out to hold Significant Others; however, upon receiving a glockenspiel as a Christmas present, his father reported, "he takes the instrument to bed with him, and holds it closely."

Subject M (mid-range functioning child) uttered one of the first words his parents heard him say: "Mu-sic". M reliably repeated this newly-acquired word within the proper context throughout the programme. Another word came from M towards the latter half of the music sessions: "Bye". Again, he reliably used the word as he was leaving his sessions.

In summary, the implementation of the writer's Orff-based music intervention programme did facilitate the acquisition and improvement of communication and socialization skills in the low-functioning and mid-range functioning autistic boys in this study. However, the high-functioning autistic boy did not make the same noticeable gains in his patterns of social interaction.

Implications for Educators and Clinical Practitioners Working with Autistic Children

The results of this study indicated that music may be an effective therapeutic intervention with those children diagnosed as autistic. Clearly, music therapy

should not be the only intervention implemented for autistic children, but rather, be used as a potentially effective adjunct to already existing treatment plans.

One particular aspect of the implementation stage of this study is directly focused at educators and clinical practitioners working with autistic children; namely, the absence of feedback from the children themselves. Teachers in this music intervention programme exuded high energy with the children more easily during the beginning weeks of the music sessions than later. Over time, three factors seemed to have a direct impact on the enthusiasm and energy of those teachers involved:

(a) the lack of feedback from the children themselves;

(b) the amount of physical energy needed and used over a period of time, leaving the teachers genuinely fatigued; and

(c) coming to terms with realistic expectations for the children when confronted with a very slow progress rate.

Two of the 3 autistic children in this study made significant gains in their social interaction patterns over the course of the music intervention. Efforts should be made by educators and clinical practitioners to determine whether an Orff-based music intervention may be helpful to those autistic children with whom they are working.

Implications for Further Research

Further research on the effects of music therapy with autistic children may eventually lead to a more informed answer to the following questions:

(a) Is the autistic child over- or under-sensitive to sensory input?

(b) Does the sensitivity question change across developmental levels?

(c) Does the sensitivity question change across the diverse etiological factors which led to the presence of the autism?

The use of a quasi-single-subject design may facilitate a thorough comparison across developmental levels. A multiple base-line design (across behaviours) would provide independent base-lines for the different behaviours exhibited by each Subject. Combining a multiple base-line design (across situations) with the across behaviours strategy would allow for the observation of behavioural trends within the following situations: (a) the home; (b) the school; and (c) the music sessions. Extending the study to a 6-12 month period may also help to provide a clearer behavioural profile for each child. Additionally, any increase in the amount of time spent with the autistic child (and his or her family) in this programme would be seen by the writer as maximizing the potential benefit for the child.

Recommendations for Further Research

The following recommendations are made for further research:

1. In order to increase the generalizability of this research, the study should be repeated, but with a more rigorous design. A multiple baseline design including a minimum of 4-weeks pre-intervention observation would be particularly effective in ascertaining the particular behavioural trends of each child. Controls should also be in place across the home, school, and intervention settings.
2. In some cases, assessment scores of the children seemed to indicate a regression during the activation of the parent participation component of the programme. A repeat of this study using the following variations in design may yield more information on the effects of including others in this programme:

a. with/without parents;

b. with the same Significant Others/with rotating Significant Others;, and

c. the exclusion/inclusion of siblings.

3. Another possible investigation would be to repeat the same music intervention programme and to compare the effects of either (a) including the parents at the beginning of the music sessions, or (b) not including them at all.

4. The ABC was used as a parental response form in this study. Should this investigation be repeated, Significant Others and teachers should also be administered the ABC. This would be an attempt to (a) correlate the information yielded from the behaviour checklist; and (b) to eliminate the effects of various stages of parental adjustment to having an exceptional child (i.e., denial, grief, guilt) on the response form.

5. The behavioural profiles obtained from the Interaction Assessment of the ASIEP did not clearly depict any real behavioural trends in this study. However, the anecdotal data contained reports that were indicative of small, incremental gains for both the low- to mid-range functioning boys that were consistent and maintained throughout the study. The possibility exists that the Interaction Assessment was not sensitive enough to pick up on the micro-level changes that occurred with the boys. The recommendation in this case is for the researcher to develop an interaction assessment that is finely-tuned to the behavioural variables under investigation.

6. Should this investigation be repeated, any increase in "contact-time" with the children would be seen as beneficial to their potential progress.

This may be achieved by either (a) extending the programme over a longer period of time, or (b) meeting with the children more often within the week.

7. Any further investigation, pertinent to the impact of this programme on autistic children may possibly benefit by: (a) bringing together children from the low- to mid-range functioning levels to form one group, and (b) working with the high-functioning autistic children separately.

8. The perceived boredom experienced by Subject H in the course of this investigation may be circumvented in future studies by permitting the following options to the high-functioning child:

   a. to progress at his or her own rate throughout the programme;
   b. to have more flexibility to develop the possible enrichment variations particularly during the second-half of the programme;
   c. to provide the child with several activities which require approximately the same level of ability and which have congruent objectives;
   d. to encourage him or her to use a variety of instruments; and
   e. to foster the child's exploration and discovery of his or her personal scales.

A Summary Note

There was a lack of congruency between the conceptualization of this study and the reality of the research. Such an investigation requires an understanding of the many elements of conflict surrounding the exceptional child within his or her family. Therefore, there are some concepts to be presented for future consideration:

1. The expectations of the researcher may not always be met. This carries with it a resounding impact on the hoped-for benefits for the autistic child;
2. The expectations of the family may not be met. This, too, directly affects the dynamics of the group interaction throughout the programme, and therefore spills back unto the hoped-for progress of the autistic child; and
3. Whether the autistic child has any expectations may not be known. However, the belief of this writer is that the child requires our efforts to meet the rigours of the intervention programme. Whether the notion may be that our social relatedness is concentric, or whether the systemic theory may be used to remind us that we covary, the fact remains that the autistic children need us to work together for them.

As a final point, open communication with the familial system is rightfully perceived as being critically important in this form of research–but it is superseded in importance by the researcher's prerequisite understanding and sensitivity pertinent to the special needs of the entire system.

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APPENDIX A

THE MUSIC INTERVENTION PROGRAMME

LESSON #1

I. HEAD, SHOULDERS

(Verbal Cues: 1-2-3)

1.	Head, shoulders	clap; clap
	Head, shoulders	clap, clap
	Head, shoulders	head, shoulders
	Head, shoulders	clap, clap
2.	Stomach, back	clap, clap
	Stomach, back	clap, clap
	Stomach, back	stomach, back
	Stomach, back	clap, clap
3.	Elbow, hip	clap, clap
	Elbow, hip	clap, clap
	Elbow, hip	elbow, hip
	Elbow, hip	clap, clap
4.	Knees, ankles	clap, clap
	Knees, ankles	clap, clap
	Knees, ankles	knees, ankles
	Knees, ankles	clap, clap

Procedures:

Firstly, the teachers slowly lead the chant, touching the appropriate parts of the body. The second time through, the teachers repeat the chant, helping the child to touch the parts of his or her body mentioned in the chant. While helping

the child through the clapping segments, the teacher begins to clap her hands, catching the child's hands simultaneously in the same action.

Objectives:

1) The child develops body awareness.
2) The child develops co-ordination.
3) The child becomes introduced to sequencing.

Variations:

As the children become more familiar with this chant, the teachers introduce them to the instruments. The children are led by the teacher to the assigned Orff instrument, and shown the correct way to hold the mallets. The chant is started, but this time, instead of clapping, the children play those beats on their instruments.

Added Objectives:

1) The child acquires an understanding of object relation.
2) The child develops fine and gross motor skills.
3) The child becomes introduced to the experience of ensemble playing.

II. MIRROR MOVEMENT

Music: Little People (Music Builders I; Record 1, Side 1).

Procedures:

One teacher serves as a leader, moving her arms, hands, shoulders, and legs, rhythmically to the music. She is facing the group, pretending that there is a

mirror between them. The children "on the other side of the mirror" are directed by the other two teachers to imitate what they see.

Objectives:

1) The child develops body awareness.
2) The child develops co-ordination.
3) The child develops a sense of directionality.
4) The child begins to learn the concept of interspatial relationship.

Variations:

Each child sits across from the teacher, pretending that the mirror is between them. Until the teacher receives an indication from the child that he or she is about to take any independent action in this activity, the teacher serves as the leader. If necessary, the teacher touches the child's hands in an effort to "connect" with him or her.

Added Objectives:

1) The understanding of the differentiation between self/others.
2) The beginning of an interpersonal-(non-verbal) communication between the teacher and the child.

III. POEM

<u>The Noble Duke of York</u>

1) The noble Duke of York
2) He had ten thousand men
3) He marched them up to the top of the hill

4) And he marched them down again

5) And when they were up they were up

6) And when they were down they were down

7) And when they were only half way up

8) They were neither up nor down

Procedures:

The teachers chant the verse, while sitting across from the child. Elbows are at the waist on line 1. The ten fingers open up on line 2. Arms are extended upwards for line 3, and downward for line 4. Arms are extended upwards again for line 5, and downward for line 6. Arms are brought to the waist for line 7, and raised for the first part of the last line, followed by lowered in order to correspond with the latter part of the line.

Objectives:

1) To help the child develop a sense of directionality.

2) To help the child develop body awareness.

Variations:

A. The teachers guide the children to use their arms as directed in the above procedure, while chanting the verse.

B. The teachers and the children chant the verse, performing the body movements. They pause at the end of line 3 so as to hear an upward glissando (an upward slide, including all the notes) on the glockenspiel, which is played by one of the teachers. At the end of line 4, there is another pause to hear a downward glissando on the bass xylophone,

played by another teacher. At the end of line 5 they hear a high pitch on the glockenspiel, and at the end of line 6, they hear a low pitch on the bass xylophone. Line 7 is followed by a medium pitch, and line 8 has both the high pitch on the glockenspiel, and the low pitch on the bass xylophone.

C. The child is introduced to clap/patschen: i.e. pat the lap, then clap your hands throughout a song or poem. The child is guided in repeating the verse while using this form of body percussion.

Added Objectives:

1) The child develops auditory awareness.
2) The child learns the concepts of high, low, and middle.
3) The child develops concentration.
4) The child increases his or her attention span.
5) The child learns sequencing.

IV. "MY OWN PLACE IN SPACE"

Procedures:

Teachers begin the chant, and repeat it over and over. Walking in rhythm to the chant, each teacher leads a child to a place in the room, and continues to chant the verse. Although each person's space should be in fairly close proximity to each other, the child will be told that this is his or her own space.

Objectives:

1) The child develops a sense of self/others.
2) The reality of this world is emphasized to the child.

3) The child develops an understanding of the concept of interspatial relationship.

Variations:

A. The teacher gives the child a non-tuned percussion instrument and demonstrates how to beat the rhythm of the words of the chant on the instrument. Saying the words, walking in rhythm, and beating the rhythm on the instruments, the child is led (if necessary) to his or her own place in space.

B. Performing the Variation A, but omitting the words.

Added Objectives:

1) In the transference of the rhythm of speech and body movement patterns to the instruments; the child develops an awareness of the connection between the natural rhythms of his or her body, to the rhythm of music and speech.

2) In using the instruments, the child discovers a "natural, non-verbal" means of communication.

3) The child develops concentration.

4) The child develops rhythmic memory.

5) The child develops auditory awareness.

V. "MOVING TO THE DRUM BEAT"

Procedures:

The teachers each take a turn playing the drum chanting the words: "Moving with the drum beat". Initially, the children are directed to listen to the beats and

the teacher's chant. Then they are guided to move to the rhythm of the drum, taking care to have the heel of their foot on the floor each time they hear the drum's beat. Each teacher chooses a tempo (rate of speed) from the following body movements:

1) Walking:

The teacher uses a strong, swinging walking beat (4 beats to a measure), and simultaneously chants the words in a happy, lively tone.

2) Running:

The teacher continues to use 4 beats in a bar, but this time they are quicker. The chant corresponds to the tempo given through the drum beat.

The teacher must always be attentive to the children, matching the tempo of the drum's beat to their capabilities. Should the teacher notice that the children are becoming over-excited, the teacher will modify the beat immediately.

3) Jumping:

The teacher will use a more forceful beat on the drum while continuing the chant. If the forceful beat is not easily discernible, then prior to beating the drum, the teacher will cue the children by adding the direction: Jump!

Again, careful monitoring of the children will be necessary at all times. Any necessary modification will be effected by the teacher with the drum, at her own discretion.

4) Skipping and Galloping:

The teacher will use uneven drum beats, matching the words of the chant to the new body movement.

5) Stopping:

The children will be introduced to the notion of the sound being stopped. At this point, the children will be directed to "freeze".

Part of the musical experience is to learn not only about sound, but also about silence, which holds the expectancy of sounds.

Once the beat resumes, so will the corresponding movement.

Objectives:

1) The child develops auditory awareness.
2) The child develops concentration.
3) The child develops attention span.
4) The child learns that how to stop an activity.

Variations:

A. The likelihood exists that the children may need to have this entire task broken up into smaller segments. If so, the teachers will accommodate the planning to suit the immediate capabilities of the children.

B. When the task is mastered by the children, the teachers may interweave the various rhythms, rather than dividing the body movement into obvious categories.

C. A further expansion of this activity will be to give each child a non-tuned percussion instrument, and direct him or her to play the instrument to the rhythm of the words as they move to the beat called by the teacher. "Freeze!" will be called at any point in time, at the teacher's discretion.

Added Objectives:

1) The children transfer the body rhythms they have learned, to the instruments.
2) The children develop fine and gross motor skills.

VI. MIRROR MOVEMENT

Music: It's Me! (Music Builders I, Record 2, Side 1).

Procedures:

Same as explained in Roman Numeral II of this lesson.

Also, the words of this song celebrate "self-hood". Those children who have even a limited comprehension of vocabulary, should "pick-up on" the joy of being just who you are. The music conveys this message through its lively, innovative arrangement. Those children who do not have any or much language development may receive the musical message of this song, which is certainly very happy.

VII. QUIET TIME

Twinkle Twinkle Little Star

Procedures:

The teachers sing the song very quietly while either rocking the child, rubbing his or her back, or just looking at the child. If any child may choose to sing along, the teacher should offer encouragement. However, this is a time for no strong demands on the child. The teachers should keep in mind the dignity of each child. Although the singing of nursery tunes may be chronologically age-inappropriate, such a practice may be acceptable given the functioning-level of each child.

Objectives:

1) To provide relaxation for the children.
2) To provide a time for listening to tunes that are both familiar and a part of the children's heritage.
3) To provide a time for quietly singing; if the children so desire.
4) To provide an opportunity for the children to sing either vocales or new words to a well-known melody.

VIII. "TIME TO GO" MUSIC

Pachelbel Canon

Procedures:

The tape is pre-set for the Pachelbel Canon. One teacher touches the play button, while the other two teachers help the children to lie on their stomachs on the provided mats. Each child then receives tactile information via back-pats from his or her teacher.

Objectives:

1) To provide the child with soothing, quiet music as he or she prepares for the transition to the next activity, and to the eventual closing of the music session.
2) To provide the children with tactile information via the back-patting of different rhythms to the Pachelbel Canon.
3) To help the children to identify the Pachelbel Canon as the "time to go" music.

LESSON #2

I. HEAD/SHOULDERS/REVIEW

Same as explained in Lesson #1.

II. HEAD AND SHOULDERS

Head and Shoulders (Music For Fun/Music For Learning, p.98).

- A Traditional singing game, sung to the tune of London Bridge.

Head and Shoulders

Head and shoulders, knees and toes,

Knees and toes, knees and toes,

Head and shoulders, knees and toes,

Eyes, ears, mouth and nose.

Procedures:

Each child is seated across from his or her teacher. The teachers sing the song, directing the children to clap the beat. As the children become accustomed to the melody, one teacher serves as a leader, calling the word: "Head". The teachers then guide the children to touch their heads whenever they hear the word "Head" in the song. For the remainder of the song, the children continue to clap.

Objectives:

1) The child develops auditory awareness.
2) The child develops body awareness.

Variations:

A. The teacher who is serving as a leader, next calls the word: "Shoulders", and the teachers direct the children to clap throughout, but to especially listen for the word "shoulders", and touch that part of their bodies whenever that word is heard.

As the children seem to have become familiarized with this task, go through the song again and again, each time selecting a new special word, that will require the children to identify and touch a part of their bodies.

B. As the children master variation A, the teacher will select combinations of words to be targeted by the children as they either hear and/or sing the song and continue to clap the beat. For example, "Head and shoulders"; "Knees and toes"; "Eyes and ears"; "Mouth and Nose".

ADDED OBJECTIVES:

1) The child participates in an action song within a group setting.
2) The children develop concentration.
3) The children develop sequence patterns.

III. ORFF INSTRUMENTAL ENSEMBLE

Traditional Childhood Songs and Games: Ring Around the Rosy; Little Sally Water.

Procedures:

Standing, the teacher will hold the child's hands, thus forming their own small circle. As they go around in the circle, they sing the nursery rhyme song.

Objectives:

1) The child holds hands with an adult, while participating in a group activity.
2) The child follows the indicated action of the song (i.e. "ashes, ashes, all fall down"; all of the indicated actions in Little Sally Water).
3) The child may create new words to a well-known melody.

Variations:

A. As the child gradually tolerates holding hands with another person, add one more couple (teacher/child) into the circle. Repeat this procedure until all members of the group have become included.

B. As the children have become familiarized with the melodies and rhythms of these songs, they are led to the tuned Orff instruments by the teacher. These instruments have been "pre-set" to include the required tone-bars for the simple melodic ostinatos, and the tone-bars required for Orff's basic "bordun" harmonic structure. The children are chiefly encouraged and guided (as much as necessary) to play the instruments. No particular attention need be given to "set parts" to be played by each child. The two major emphases here are that the children begin to play the instruments, and subsequently, experience musical input.

Added Objectives:

1) The child develops a sense of social interaction.
2) The child develops improvisatory skills within a group setting.

IV. "MY OWN PLACE IN SPACE"

Same as explained in Lesson #1.

V. "MOVING TO THE DRUMBEAT"

Same as explained in Lesson #1.

VI. ACTION SONG

Name Song (A Handbook on the Use of Songs to Teach Autistic and Other Severely Handicapped Children, p.58).

Procedures:

Teachers and children are seated in a circle. Verse 1 is sung by the teachers, and simultaneously, the children are guided to clap in time with the music. The teachers will substitute the childrens' names in the song with the actual names of the children they have with them in the session.

The words of verse 1 are:

Where is Kenny?

Where is Kenny?

Here I am.

Here I am.

How are you this morning?

Very well I thank you.

Please sit down.

Please sit down.

The teachers may need to provide total guidance during this activity: i.e. help the child to stand when his or her name is sung, hold the child's hand so

that he or she will stay in the circle formation, lead the child to the center of the circle when it is his or her turn, and re-direct the child to his or her place. With rehearsal, these movements will require less teacher direction.

Objectives:

1) The child learns to tolerate a group setting.
2) The child learns to recognize his or her name.
3) The child attends to his or her situational surroundings.
4) The child stands upon hearing his or her name.
5) The child stands in the middle of the circle during his or her verse.
6) The child returns to his or her place in the circle.

Variations:

A second verse is added by the teachers to include any body movement that is within the child's capabilities. For example, the words suggested for Verse 2 are:

Kenny's dancing,
Kenny's dancing,
Good for you,
Good for you.
How are you this morning?
Very well I thank you.
Please sit down.
Please sit down.

Whenever a child begins to engage in an inappropriate movement, the verse is altered to include that movement, thereby transforming the movement to being

appropriate. Should the child begin to move his or her body a little late in the verse, the teachers should change the last 2 lines to:

Dance some more,

Dance some more.

Or:

Jump some more,

Jump some more.

In other words, the teachers will encourage the child, who started to respond a little later to the activity, to complete his or her turn. However, at the end of the second verse, the last words will be:

Please sit down,

Please sit down.

A child who is passive may require the teacher to hold his or her hands, in order to have the sense of "dancing", or "hopping", or "jumping".

In the event of a child spontaneously choosing another to move with him or her, this "reaching out" behaviour should be both encouraged by the teachers, and be reflected in the song. For example:

Kenny's dancing, Mary's dancing.

Good for them, Good for them.

How are you this morning?

Very well I thank you.

Please sit down.

Please sit down.

Added Objectives:

1) The child chooses the way he or she wants to move for the group.

2) The child becomes able to follow more complex instructions within a group setting.

3) The child participates in a positive manner and receives the attention of the teachers and the other children.

VII. MIRROR MOVEMENT

Grandma's Feather Bed (Music Builders V, Record 1, Side 2).

Same as explained in Lesson #1.

VIII. QUIET TIME

Hush Little Baby (A Handbook on the Use of Songs to Teach Autistic and Other Severely Handicapped Children, p.88).

Same as explained in Lesson #1.

IX. "TIME TO GO" MUSIC

Pachelbel Canon

Same as explained in Lesson #1.

LESSON #3

I. "FOLLOW ME"

Music: It's a Small World (Music Builders I, Record 1, Side 2).

Procedures:

Each child is seated across from his or her teacher. The teachers guide the children in keeping time with the music by: 1) patting knees, 2) clapping hands, 3) combining 1 and 2 in sequence resulting in clap/patschen, 4) stamp, and 5) following the sequence of pat, clap, stamp the right foot, stamp the left foot. One of the teachers serves as the leader, who calls the body percussion changes throughout the music.

Objectives:

1) The child develops body awareness.
2) The child learns sequencing.
3) The child becomes more aware of body levels.

Variations:

A. Each teacher holds one hand of the child, and forms a line behind each other. The couple in the front, serve as the leaders, and the others follow them, imitating their movements. Once the teacher in the front calls: "Switch!", everyone "freezes", the couple in the front go to the back of the line, and the next couple will serve as leaders. The verbal cue is given by the teacher: 1-2-3. The whole process repeats until everyone has had a turn. The teachers aim to give the children enough

time as leaders, without causing the children to become overtired by the activity.

Added Objectives:

1) The child learns co-operation in a group setting.

2) The child develops an understanding of self/others.

II. ACTION SONG

Name Songs with Tags (A Handbook on the Use of Songs to Teach Autistic and Other Severely Handicapped Children, p.61).

Procedures:

The children and the teachers are seated in a circle. In the centre of the circle there are large (5½ x 11") cards, upon which each child's name is printed. Initially, there is a string attached to each card, which the child may pull, and in so doing, successfully retrieves his or her name-card from the center of the circle. As the child becomes able to identify his or her own card, the string is removed, and the child is guided (if necessary) to the center of the circle, identifies the correct card, and returns to his or her place in the circle.

The teachers sing the song throughout, repeating the tune on "Tra-La", (or any other agreed upon vocal) for as long as the child requires, while he or she is performing the task.

Objectives:

1) The child attends to his or her situational setting.

2) The child learns the social concept of taking turns within a group.

3) The child acquires a recognition of his or her printed name.

4) The child goes unassisted to the center of the circle and returns to his or her place in the circle.

Variations:

If required, the cards may be colour-coded, so as to facilitate the child's recognition of the card, once the string is removed.

III. ORFF ENSEMBLE

Poem: Happiness (Music For Fun/Music For Learning, p.156).

John had
Great Big
Waterproof
Boots on;
John had a
Great Big
Waterproof hat;
John had a
Great Big
Waterproof Mackintosh -
And that
(Said John)
Is
That.
(A. A. Milne)

Procedures:

The teachers chant the poem, as they direct the children to use the body percussion throughout the poem.

Objectives:

1) The child develops a sense of the rhythm and speech patterns.
2) The children develops his or her attention span.
3) The child develops concentration.

Variations:

A. Rather than using the clap/patschen body percussion, the children are now asked to listen for the word: "Waterproof". Each time this special word is heard, the child is guided to pat the rhythm of the word on his or her lap.

B. Rather than variation A; this time the children will be directed to listen for the word: John, and to clap the rhythm of that word whenever it is heard by the child throughout the poem.

C. Rather than variation A or B; the child is directed to stamp his or her foot to the rhythm of the words: "Great Big", each time those words are heard throughout the poem.

D. Upon mastery of all the above variations, gradually combine the body percussion in couples. For example: Go through the poem using the pats (every time for "Waterproof") AND the claps (every time for "John"). Then go through the poem coupling the stamps (every time for "Great Big") with either the pats or the claps.

E. Upon mastery of variation D; go through the poem, incorporating all of the body percussion for the words: "waterproof", "John", and "Great Big".

F. Upon mastery of variation E, the teachers will guide the children to the tuned Orff instruments, and, once settled, begin to chant the poem. This time, instead of using the body percussion elements, the children will be directed to transfer the same rehearsed rhythms for those special words onto the instruments.

Added Objectives:

1) The child creates music within a group setting.
2) The child develops an awareness of others.
3) The child receives more rehearsal of auditory awareness skills.

IV. "MY OWN PLACE IN SPACE".

Same as explained in Lesson #1.

V. MIRROR MOVEMENT

Free To Be...You And Me (Music Builders IV, Record 1, Side 1).

Same as explained in Lesson #1.

VI. "HELLO HANDS! HELLO FEET!"

Procedure

The teacher calls out the greetings to the hands and simultaneously waves her hands. Likewise, she stamps her feet as she calls a greeting to them. The children are directed to wave their hands and feet appropriately; that is, only for the actual duration of the verbal greetings.

Objectives

1) The child develops body awareness.

2) The child learns to stop an activity.

VII. ACTION SONG

Hokey-Pokey (A Handbook on the Use of Songs to Teach Autistic and Other Severely Handicapped Children, p.69).

Procedures:

Standing and singing, the teachers either model or guide the children (dependent upon the children's responses) to dance to the song as indicated in the text.

Objectives:

1) The child is able to perform the actions indicated in the text.

2) The child develops body awareness.

3) The child participates with the group.

VIII. QUIET TIME

You Are My Sunshine (Handbook on the Use of Songs to Teach Autistic and Other Severely Handicapped Children, p.87).

Same as explained in Lesson #1.

IX. "TIME TO GO" MUSIC.

Pachelbel Canon.

Same as explained in Lesson #1.

X. "BYE-BYE"

Procedures

Each child goes to the farthest wall from the exit door with his or her teacher. There must be a straight, cleared walkway from this wall to the exit door. Teachers and children then begin the "Bye-Bye" chant, walking in rhythm to the words: i.e.,

I. "Bye-Bye" (taking 2 steps simultaneously with the spoken words in a ti-ti rhythm);

II. Wait, Wait, Wait (waiting in place while speaking the words in a Ta-Ta-Ta rhythm); and

III. Repeating the sequence until the exit door has been reached.

Objectives

1) The child learns how to stop an activity.
2) The child develops auditory awareness.
3) The child develops concentration.

LESSON #4

I. "FOLLOW ME"

Animal Crackers In My Soup (Music Builders II, Record 2, Side 1).

Same as explained in Lesson #3.

II. ACTION SONG

If You're Happy And You Know It (A Handbook on the Use of Songs to Teach Autistic and Other Severely Handicapped Children, p.71).

Same "Action Song" procedure as explained in Lesson #3. Also, the teachers may include any other behaviours the children may be exhibiting: i.e. If you're shy and you know it, hide your face; If you're angry and you know it hit the floor; If you're silly and you know it give a giggle; If you're happy and you know it give someone a hug...

Added Objectives:

1) Any inappropriate behaviours of the children will become transformed into appropriate behaviours, since they will match the context of the song.

III. "MY OWN PLACE IN SPACE"

Same as explained in Lesson #1. The teachers lead the children to the instruments.

IV. ORFF INSTRUMENTAL ENSEMBLE

Ring Around The Rosy; Little Sally Water.

Same as explained in Lesson #2.

V. "FOLLOW ME"

It's A Small World (Music Builders I, Record 1, Side 2).

Same as explained in Lesson #2. The teacher leads the group in such a manner so as to end in a circle formation. The children are directed to sit.

VI. ORFF ENSEMBLE

Punchinello (See pentatonic melody in the appendix. Again, no set Orff arrangement is presented to the children. Rather, each child is requested to choose an instrument and then encouraged or guided to play. The leader introduces the concept of the Rondo form by calling on a child to play a section of the song alone, followed by requesting that remaining ensemble members "join-in" for another section of the song.)

Procedures:

Remaining in the circle, the children are directed to be seated, and the teachers move to a seated position in front of each child. The teachers then begin to use the clap/patschen body movements and guide the children, if necessary, to join in their body percussion. Once this is achieved by all the children, the teachers very slowly begin to say the words of the song in rhythm. This is followed by the teachers singing of the song, to the body percussion of the entire group.

Next, the teachers stand back in the formation of the circle, ask the children to stand, and join hands. One teacher then goes to the middle of the circle and models a possible physical action that the children may imitate. At the end of the turn, the teacher then chooses a child to be Punchinello, and guides him or her to participate in the activity.

Objectives:

1) The child attends to the actions of others in the group.
2) The child participates in a group setting.
3) The child imitates the body movements of others.

VII. ACTION SONG

If You Know Where Your Hands Are (A Handbook On The Use Of Songs To Teach Autistic And Other Severely Handicapped Children), p.63.

Procedure

The teachers and the children should be seated in a circle, and sing only those verses whose accompanying actions may be enacted while in the sitting position.

In preparation, the teachers will talk to the children about the body parts mentioned in this song. While the song is being sung, teachers will provide the appropriate cues to the child to facilitate his or her enactment of the directions within the song.

Objectives

1) The child develops listening skills.
2) The child concentrates his or her attention on the specific actions directed in the song.
3) The child acquires recognition of the body parts mentioned in the song.
4) The child performs the required actions, as directed in the song.

VIII. QUIET TIME

Hush Little Baby (A Handbook on the Use of Songs with Autistic and Other Severely Handicapped Children, p.88).

Same as explained in Lesson #1.

IX."TIME TO GO" MUSIC.

Pachelbel Canon

Same as explained in Lesson #1.

X. "BYE-BYE"

Same as explained in Lesson #3.

LESSON #5

I. MIRROR MOVEMENT

Monster Rock (Music Builders IV, Record 1, Side 1).

Same as explained in Lesson 1.

II. ORFF ENSEMBLE

Traditional Children's Song/Poem: The Little Witches (Music For Fun/Music For Learning, p. 153).

- Sung to the tune of Ten Little Indians.

The Little Witches

One little two little three little witches
Fly over haystacks, fly over ditches;
Slide down moonbeams without any hitches -
Heigh ho Hallowe'en's here!

Same as explained in Lesson #3.

III. ORFF INSTRUMENTAL ENSEMBLE

There Was An Old Witch (Music For Fun/ Music For Learning, p.115). (See Orff arrangement in the Appendix.)

There Was An Old Witch

There was an old witch, Believe it if you can,
She tapped on the window, And she ran, ran, ran.
She ran helter skelter with her toes in the air,
Cornstalks flying in the old witch's hair.
"Swish," goes the broomstick, "Meow," goes the cat,

"Plop," goes the hop-toad, sitting on her hat.

"Wee," chuckled I, "What fun, fun, fun!"

Hallowe'en night when the witches run.

- Traditional Song.

Same as explained in Lessons #2 and #3. Also, the teachers assign a person to be responsible for a sound effect for the following words: "Swish" (i.e. a glissando on the glockenspiel), "Meow" (i.e. a triangle played to the rhythm of the word), "Plop" (i.e. one single note played on the xylophone), "Wee" (i.e. a tambourine shake).

The teachers may also introduce the melody to the children and incorporate it with their learned sound effects.

When the children seem to be comfortable with the singing activity mixed with sound effects, the children may be led to the Orff instruments. Each child will then be guided in playing a part of a bordun, or ostinato, on pre-set tuned instruments. This instrumentation will serve as their accompaniment as the group sings the Hallowe'en song.

IV. GAME

The Witch Is In The Dark (Music For Fun/Music For Learning, p.112). - An adaptation.

- Sung to the tune of The Farmer in the Dell.
- Game played according to the format of The Farmer in the Dell.

The Witch Is In The Dark

The witch is in the dark, The witch is in the dark,

Heigh ho for Hallowe'en, The witch is in the dark.

The witch takes a bat, The witch takes a bat,

Heigh ho for Hallowe'en, the witch takes a bat.

The bat takes a black cat, The bat takes a black cat,

Heigh ho for Hallowe'en, The bat takes a black cat.

The black cat takes a rat, The black cat takes a rat,

Heigh ho for Hallowe'en, The black cat takes a rat.

[One Person remaining on the outside of the circle. This person will be the Ghost.]

The Ghost says "Boo", The ghost says "boo",

Heigh ho for Hallowe'en, the Ghost says "boo".

They all go away, They all go away.

Heigh ho for Hallowe'en, They all go away.

Procedures:

The children are guided by their teachers as to the format of the game. Care is taken not to accentuate the word "Boo". The teachers sing the song as the game is being played. Hopefully, some of the children will eventually sing along.

Objectives:

1) The children participate in a game within the context of the group.
2) The children develop social skills.

IV. "FOLLOW ME"

Robin In The Rain (Music Builders I, Record 2, Side 2).

Same as explained in Lesson #3. At the end of the song, the teachers lead the children to the instruments.

V. ORFF INSTRUMENTAL ENSEMBLE

Rain Medley

- Medley consists of 3-note (sol-mi-la) Pentatonic melodies: It's Raining; Rain Rain Go Away.

Same as explained in Lesson #4.

V. "MY OWN PLACE IN SPACE"

Same as explained in Lesson #1.

VI. MIRROR MOVEMENT

Listen To The Raindrops (Music Builders III, Record 2, Side 2.)

Same as explained in Lesson #1.

VII. QUIET TIME

You Are My Sunshine (A Handbook on the Use of Songs with Autistic and Other Severely Handicapped Children, p.87).

Same as explained in Lesson #1.

VIII. "TIME TO GO" MUSIC

Pachelbel Canon.

Same as explained in Lesson #1.

IX. "BYE-BYE"

Same as explained in Lesson #3.

LESSON #6

I. "FOLLOW ME"

Little People (Music Builders I, Record 1, Side 1).

Same as explained in Lesson #3.

II. "MY OWN PLACE IN SPACE"

Same as explained in Lesson #1. The teacher's use it now to direct the children to a circle formation.

III. ORFF INSTRUMENTAL ENSEMBLE

Li'l Liza Jane (Music For Fun/ Music For Learning, p.71).

- (Same as explained in Lessons #2 and #4).

IV. MIRROR MOVEMENT

I Am But A Small Voice (Music Builders IV, Record 2, Side 2).

Same as explained in Lesson #1.

V. ACTION SONG

Passing Song (A Handbook on the Use of Songs to Teach Autistic Children and Other Severely Handicapped Children, p.73).

Same as explained in Lesson #3. Additionally, in order to familiarize the children with the mechanics of the game, the teacher must start off the song passing an object which is belonging to them. In so doing, they give the children the chance to realize that when it is their turn to play this game, their object will eventually be returned to them.

Added Objectives:

1) This song/game facilitates social development.
2) Should the child have developed a special attachment for an object, he or she learns to "give it up" for a length of time.
3) The child learns to tolerate others touching or holding his or her possession.
4) The child develops the fine motor skills required to complete this task.

VI. ORFF ENSEMBLE

Teddy Bear (Music For Fun/Music For Learning, p.148).

Teddy Bear

Teddy bear, Teddy bear, turn around;
Teddy bear, Teddy bear, touch the ground.
Teddy bear, Teddy bear, shine your shoe;
Teddy bear, Teddy bear, that will do.

Teddy bear, Teddy bear, walk upstairs;
Teddy bear, teddy bear, say your prayers.
Teddy bear, teddy bear, switch off the light;
Teddy bear, Teddy bear, say good-night!

Same methodology as explained in Lesson #3 (Action Song). Initially, the children will be directed to perform the actions as indicated within the text of the poem. This will be followed-up with the teachers modelling a clap/patschen accompaniment for the poem. Parents will guide their children to participate in this activity. Teachers will continue to model for the entire group. A four beat

introduction will be given in the clap/patschen, and a four beat ending will be supplied by the clap/patschen accompaniment.

VII. "MY OWN PLACE IN SPACE".

As explained in Lesson #1.

VIII. ORFF INSTRUMENTAL ENSEMBLE

Goin' to Kentucky (See pentatonic melody in the Appendix).

Same as explained in Lessons #2 and #4.

IX. "FOLLOW ME"

Gee, I'm Glad I'm No One Else But Me (Music Builders III, Record 2, Side 2).

Same as explained in Lesson #3.

X. QUIET TIME

Twinkle Twinkle Little Star (A Handbook on the Use of Songs to Teach Autistic and Other Severely Handicapped Children, p.86).

Same as explained in Lesson #1.

XI. "TIME TO GO" MUSIC

Pachelbel Canon

Same as explained in Lesson #1.

XII. "BYE-BYE"

Same as explained in Lesson #3.

LESSON #7

I. MIRROR MOVEMENT

Special (Music Builders II, Record 2, Side 1):

Same as explained in Lesson #1. Since the parents are participating in this session, the parent becomes the leader for the child. Should the parent observe that the child is beginning to make any independent movements, then the leadership should be immediately relinquished by the parent, and given over to the child.

II. ACTION SONG

Picking Up Blocks (A Handbook on the Use of Songs with Autistic and Other Severely Handicapped Children, p.62).

Same as explained in Lessons #2 and #3. A basket with blocks scattered around it, is put in the middle of the circle. The child may choose to go to the center of circle alone, or with another person. Once there, some of the blocks should be returned to the basket. If the child or the children require a little more time to perform the task due to any earlier hesitation, the second verse is repeated. However, if there was no hesitation, then the teachers and parents will sing the third verse: "That's enough blocks, your turn's over...".

Added Objectives:

1) The child attends to specific directions, and follows them.
2) The child co-operates with other children, in order to perform the task.

III. "FOLLOW ME"

It's A Small World (Music Builders I, Record 1, Side 2.

Same as explained in Lesson #3.

Since the parents are participating in this session, the parent becomes the leader for the child. Should the parent observe that the child is beginning to make any independent movements, then the leadership should be immediately relinquished by the parent, and given over to the child.

IV. ORFF INSTRUMENTAL ENSEMBLE

Li'l Liza Jane (Music For Fun/Music For Learning: p.71/Review); The Old Red Wagon (Music For Fun/Music For Learning, p.68); Hambone (See pentatonic melody in the Appendix).

Same as explained in Lesson #2.

V. "MY OWN PLACE IN SPACE".

Same as explained in Lesson #1. The adults lead the children to a circle formation.

VI. ACTION SONG

Passing Song (A Handbook on the Use of Songs with Autistic and Other Severely Handicapped Children, p.73).

Same as explained in Lesson #6. This time the children will be guided to participate.

VII. ORFF ENSEMBLE

Action Poem/Review

Teddy Bear (Music For Fun/Music For Learning, p.148).

Same as explained in Lesson #6.

VIII. QUIET TIME

Twinkle Twinkle Little Star (A Handbook on the Use of Songs to Teach Autistic and Severely Handicapped Children, pg.86).

Same as explained in Lesson #1.

IX. "TIME TO GO" MUSIC

Pachelbel Canon

Same as explained in lesson #1.

X. "BYE-BYE"

Same as explained in Lesson #3.

LESSON #8

I. MIRROR MOVEMENT

I'm Gonna' Sing (Music Builders I, Record 2, Side 1).

Same as explained in Lesson #1. At the end of the song, the children are led to the instruments.

II. ORFF INSTRUMENTAL ENSEMBLE

Rain Medley (Review); Christmas Is Coming (Music For Fun/Music For Learning, p.119); Ring Around The Rosie (Review).

Same as explained in Lesson #2.

Added Objectives:

1) The child will explore improvisation.
2) The child differentiates between self/others.

III. "MY OWN PLACE IN SPACE".

Same as explained in Lesson #1. The teachers lead the children to the circle formation.

IV. ORFF ENSEMBLE

Dance/Action Songs

The Old Red Wagon (Review); Punchinello (Review); and Hokey-Pokey (Review).

Same as explained in Lesson #3.

V. ORFF ENSEMBLE

Action Poem

Happiness (Review)

Same as explained in Lesson #3.

VI. "FOLLOW ME"

Gee, I'm Glad I'm No One Else But Me (Music Builders III, Record 2, Side 2).

Same as explained in Lesson #3.

VII. ACTION SONG/REVIEW

Name Song (A Handbook on the Use of Songs to Teach Autistic and Severely handicapped Children, pg. 58).

Same as explained in Lesson #2.

VIII. ACTION SONG/REVIEW

If You're Happy And You Know It (A Handbook on the Use of Songs to Teach Autistic and Severely Handicapped Children, pg.71)

Same as explained in Lesson #4.

IX. QUIET TIME

You Are My Sunshine (A Handbook on the Use of Songs to Teach Autistic and Other Severely Handicapped Children, p.87).

Same as explained in Lesson #1.

X. "TIME TO GO" MUSIC

Pachelbel Canon

Same as explained in Lesson #1.

XI. "BYE-BYE"

Same as explained in Lesson #3.

LESSON #9

I. MIRROR MOVEMENT

The Little Drummer Boy (Music Builders II, Record 1, Side 2).

Same as explained in Lesson #1.

II. "MY OWN PLACE IN SPACE"

Same as explained in Lesson #1.

III. "MOVING TO THE DRUMBEAT"

Same as explained in Lesson #1.

IV. ORFF INSTRUMENTAL ENSEMBLe

Christmas Is Coming (Review); Christmas Is Here (See Orff arrangement in the Appendix); Deck The Halls (See Orff arrangement in the Appendix); The Bells Are Ringing (See Orff arrangement in the Appendix); Oh Do You Hear Our Little Song? (See Orff arrangement in the Appendix).

Same as explained in Lesson #2.

V. "FOLLOW ME"

Special (Music Builders II, Record 2, Side 1).

Same as explained in Lesson #3. At the end of the song, the leader directs the children to a circle formation.

VI. ORFF ENSEMBLE

Action Poem/Review

Teddy Bear

Same as explained in Lesson #6.

VII. "HELLO HANDS!" "HELLO FEET!"/REVIEW

Same as explained in Lesson #3.

VIII. ACTION SONG/REVIEW

Hokey Pokey (A Handbook on the Use of Songs to Teach Autistic and other Severely Handicapped Children, pg.69)

Same as explained in Lesson #3.

IX. MIRROR MOVEMENT

I'm Gonna' Sing (Music Builders I, Record 2, Side 1).

Same as explained in Lesson #1.

X. QUIET TIME

Hush Little Baby (A Handbook on the Use of Songs to Teach Autistic and Other Severely Handicapped Children, p.88).

Same as explained in Lesson #1.

XI. "TIME TO GO" MUSIC

Pachelbel Canon

Same as explained in Lesson #1.

XII. "BYE-BYE"

Same as explained in Lesson #3.

LESSON #10

I. HEAD/SHOULDERS/REVIEW

Same as explained in Lesson #1.

II. HEAD AND SHOULDERS

Same as explained in Lesson #2. Today, sing it trying to touch all of the parts of the body that are mentioned in the song.

III. "FOLLOW ME"

Free To Be... You And Me (Music Builders IV, Record 1, Side 2).

As explained in Lesson #3. At the end of the song, the children are led by the adults to the instruments.

IV: ORFF INSTRUMENTAL ENSEMBLE

Nursery Tunes Medley (Review: Ring Around the Rosy, Little Sally Water, The Noble Duke Of York); Rain Medley (Review: It's Raining, It's Pouring, Rain Rain Go Away); and The Christmas Medley (Review: Christmas Is Coming, Christmas Is Here, Deck The Halls, The Bells Are Ringing Everywhere, Oh Do You Hear Our Little Song?).

Same as explained in Lessons #2 and #4.

Added Objectives:

1) The child will explore improvisation.
2) The child becomes more aware of self/others.

V. "MY OWN PLACE IN SPACE".

Same as explained in Lesson #1. The adults lead the children to a circle formation.

VI. "MOVING TO THE DRUMBEAT"

Same as explained in Lesson #1.

VII. ACTION SONG/REVIEW

Passing Song (A Handbook on the Use of Songs to Teach Autistic and Severely Handicapped Children, pg.73).

Same as explained in Lesson #6.

IV. MIRROR MOVEMENT

I Am But A Small Voice (Music Builders IV, Record 2, Side 2).

Same as explained in Lesson #1.

V. ACTION SONG/REVIEW

Name Song (A Handbook on the Use of Songs to Teach Autistic and Other Severely Handicapped Children, p.58).

Same as explained in Lesson #2.

VI. ACTION SONG/REVIEW

Name Songs with Tags (A Handbook on the Use of Songs with Autistic and Other Severely Handicapped Children, pg.61).

Same as explained in Lesson #3.

VII. ACTION SONG/REVIEW

Picking Up Blocks (A Handbook on the Use of Songs with Autistic and Other Severely Handicapped Children, pg.62)

Same as explained in Lesson #7.

VIII. ACTION SONG/REVIEW

If You're Happy And You Know It (A Handbook on the Use of Songs to Teach Autistic and Other Severely Handicapped Children, p.71).

Same as explained in Lesson #4.

IX. ORFF INSTRUMENTAL ENSEMBLE

Old Red Wagon (Music For Fun/Music For Learning, pg.68)

Goin' To Kentucky (See pentatonic melody in the Appendix).

Same as explained in Lessons #2 and #4.

X. MIRROR MOVEMENT

The Little Drummer Boy (Music Builders II, Record 1, Side 2).

Same as explained in Lesson #1.

XI. QUIET TIME

You Are My Sunshine (A Handbook on the Use of Songs to Teach Autistic and other Severely Handicapped Children, p.87).

Same as explained in Lesson #1.

XII. "TIME TO GO" MUSIC

Pachelbel Canon

Same as explained in Lesson #1.

XII. "BYE-BYE"

Same as explained in Lesson #3.

APPENDIX B
THE PARENTAL CONSENT FORMS

CONSENT FORM

Dear Parent,

I have recently developed a music intervention programme specifically designed for children diagnosed as being autistic. Incorporated throughout the programme are Carl Orff music education methods, which over the past ten years have been found to be relatively effective in working with children with special needs.

The development, implementation, and evaluation of this programme form the work for my thesis, which is a primary requirement for the completion of the Master of Education degree in Educational Psychology.

The major research question for this study is: Will music therapy be found to be an effective method to improve communication skills and increase positive behaviour in children diagnosed as being autistic?

The study will begin in September, 1987, and continue weekly through to December, 1987 (a total of thirteen weeks). One group consisting of three children of comparable levels of functioning will meet each week for a 60 minute music therapy session. In addition, each child will be given a 30 minute individual session each Saturday.

In order to gather data to assess the programme's impact, therapy sessions #1, 2, 5, 6, 9, 10 will be videotaped. Parents will be requested to view these videotapes at their own discretion.

Should you have any questions or concerns at any time throughout this study, please contact Karen Watts at the following telephone number: 737-8273 (Educational Psychology Graduate Office).

Please sign and return the attached consent form to give your permission, or return it unsigned to refuse permission.

I hereby give consent to have _____ participate in the music intervention programme as described above. I give permission to have the music sessions videotaped, and also consent to the viewing of these videotapes by others for educational purposes.

_____
(Signature of parent, or
legally appointed caretaker)

Date: _____

PLEASE SIGN BOTH COPIES. KEEP ONE, AND RETURN THE OTHER TO THE RESEARCHER.

APPENDIX C
PENTATONIC MELODIES AND ORFF ARRANGEMENTS

There Was An Old Witch

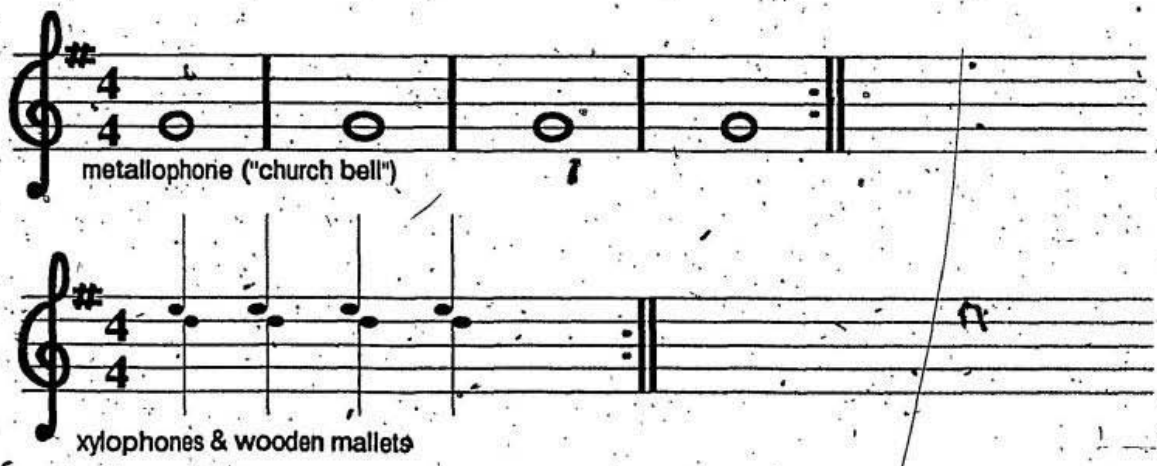
- adapted by K. Watts.
- Traditional

There was an old witch
Believe it if you can
She tapped on the windows
And she ran, ran, ran.

She ran helter skelter
with her toes in the air
Cornstalks flying in the old witch's hair.

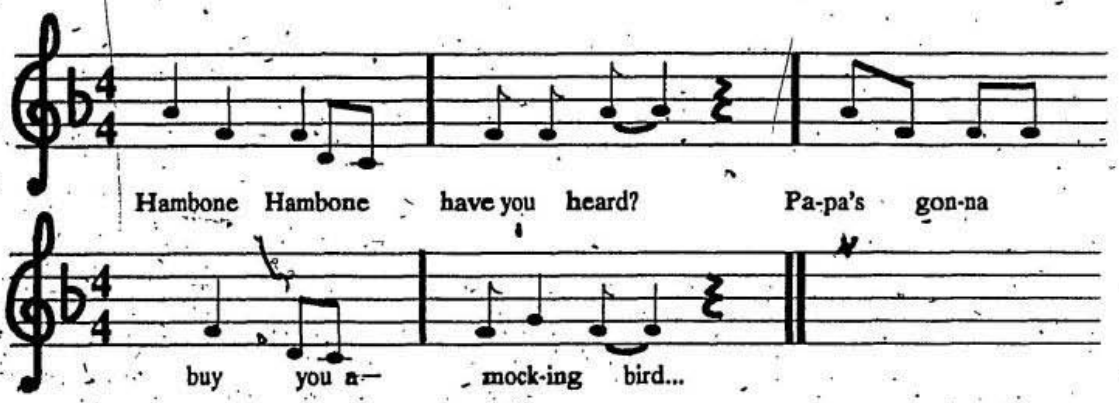
"Swish" goes the broomstick
"Meow" goes the cat,
"Plop" goes the haptoad
sitting on her hat
"Wee", chuckled I, "What fun, fun, fun!"
Hallowe'en night when the witches run.

"Swish" (glissando on glockenspiel)
"Meow" (on finger-cymbals)
"Plop" (Single note on Xylophone)
"Wee" (Tambourine Shake)



Hambone

- American Folk.



...can't sing ... diamond ring.

...turns brass ... looking glass.

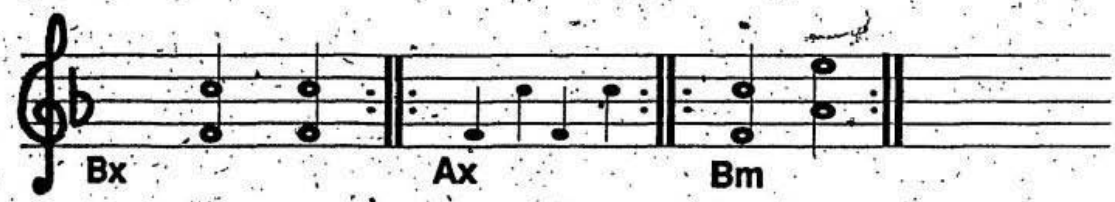
...gets broke ... billy goat.

...gets looks ... silly goose.

...won't play ... big bouquet

...won't smell ... wishing well.

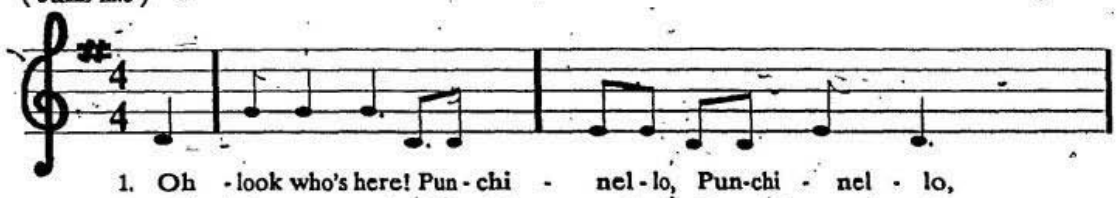
And then in the evening when we'e been fed,
Papa's gonna' tuck us all in bed.



Punchinello

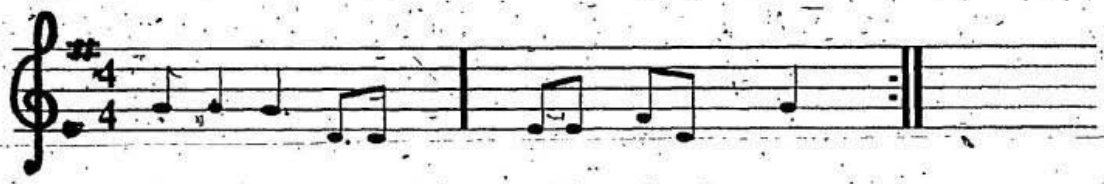
- Nursery Tune.

("Jazz-like")



1. Oh - look who's here! Pun - chi - nel - lo, Pun-chi - nel - lo,
2. Oh - what can you do?Pun - chi - nel - lo, Pun-chi - nel - lo,

3. Oh - we can do it too! Pun - chi - nel - lo, Pun-chi - nel - lo,
4. Oh - wo do you choose?Pun - chi - nel - lo, Pun-chi - nel - lo,



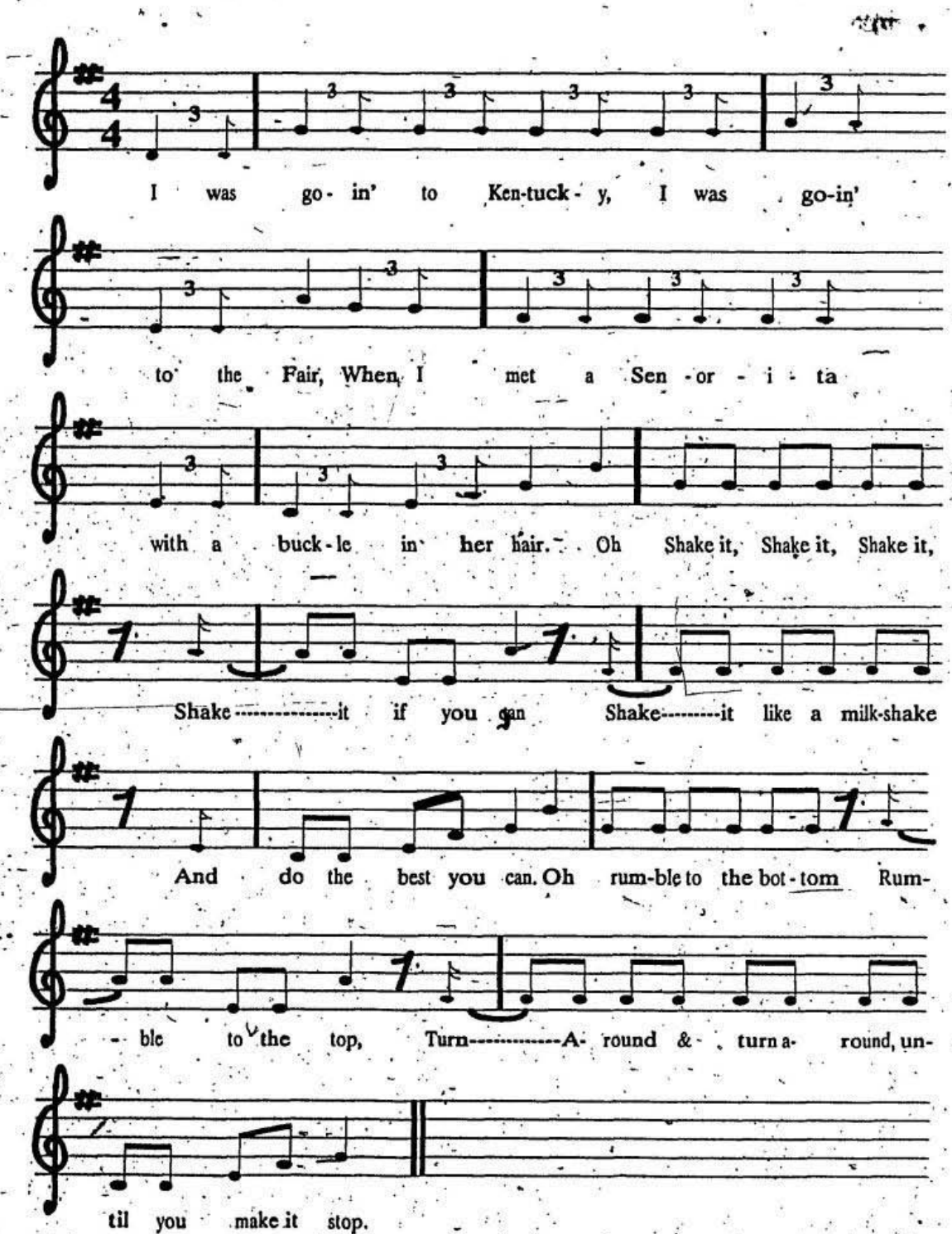
1. Look who's here! Pun-chi - nel - lo from the zoo!
2. What can you do?Pun-chi - nel - lo from the zoo!

3. We can do it too! Pun-chi - nel - lo from the zoo!
4. Who do you choose? Pun-chi - nel - lo from the zoo!

Goin' to Kentucky

- Traditional.

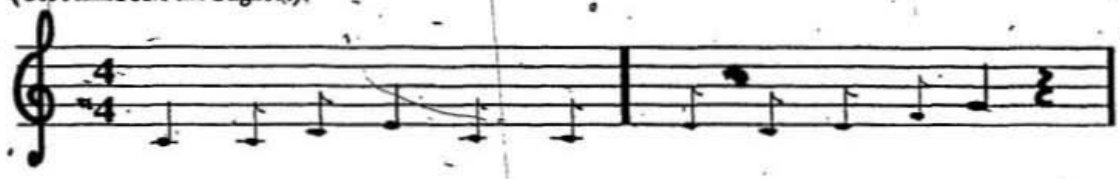
(Use Tambours throughout)



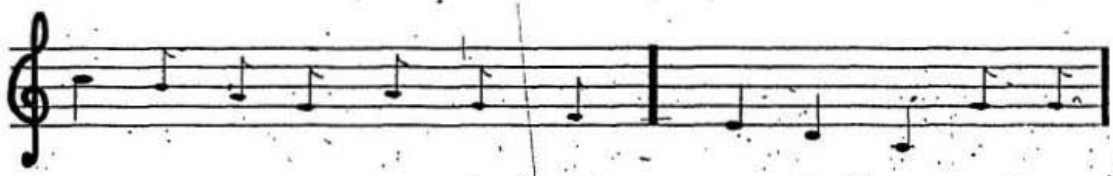
Christmas is Coming (An Introduction to the Medley)

- Old English Carol

(Use Jambours throughout).



Christ-mas is com- ing, the goose is get- ing fat.



Please put a pen- ny in the old man's hat. If you

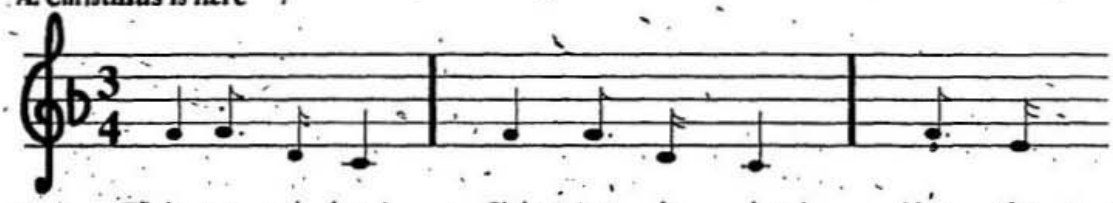
have-n't got a pen- ny, a ha' pen- ny will do. If you

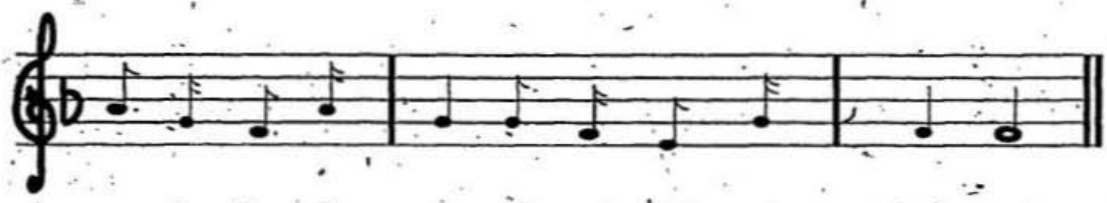
have-n't got a ha' pen- ny, well 'God bless' you.

A Christmas Medley

- arranged by K. Watts.
- Swedish Chistmas Carol.

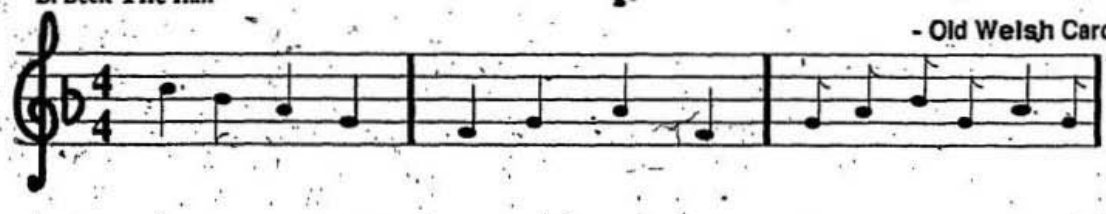
A. Christmas Is Here

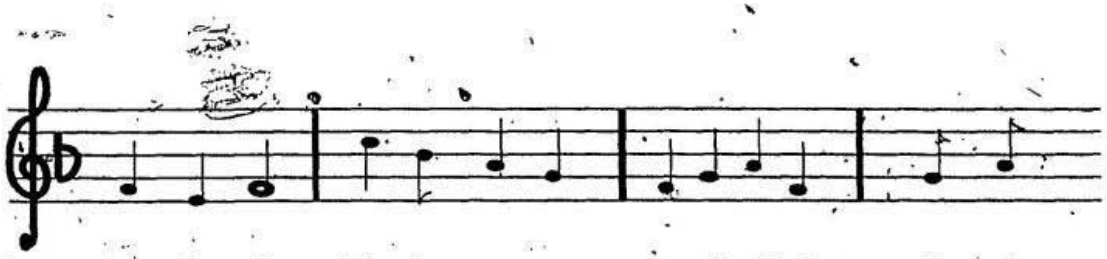




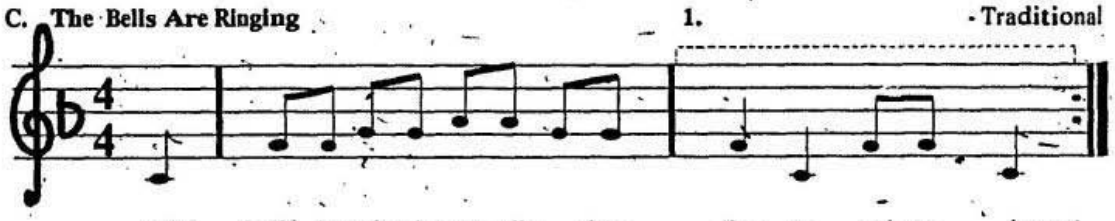
B. Deck The Hall

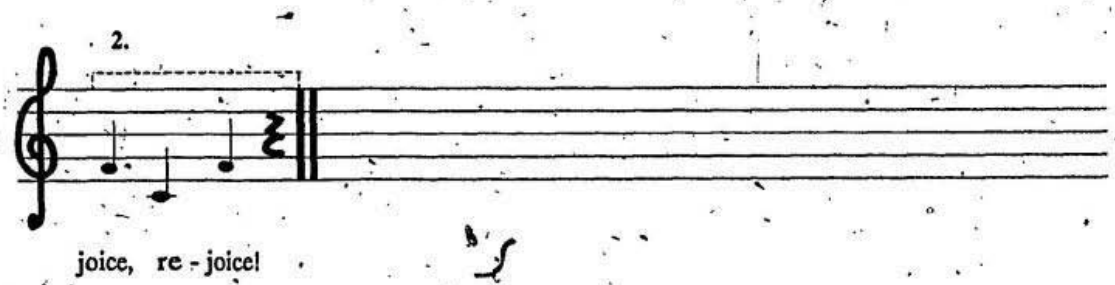
- Old Welsh Carol





C. **The Bells Are Ringing** - Traditional

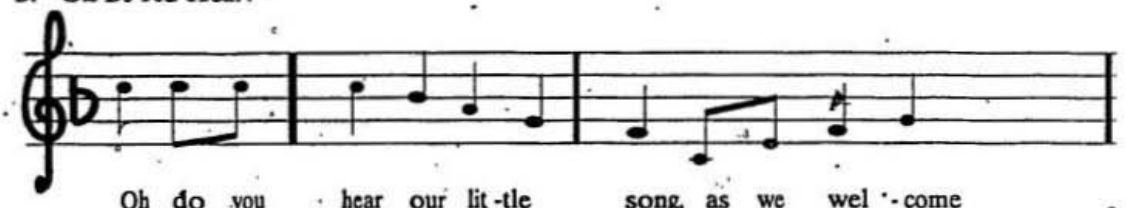


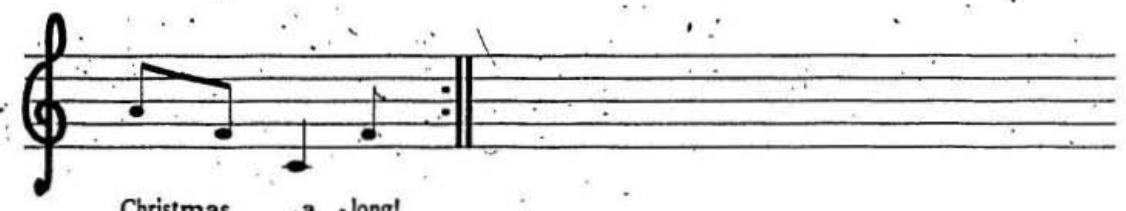


A Christmas Medley (continued)

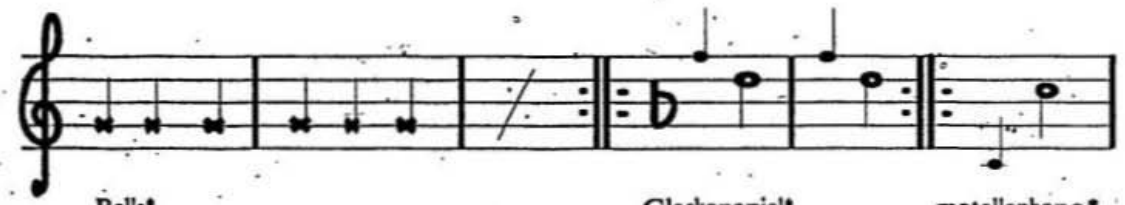
- French Folk Song.

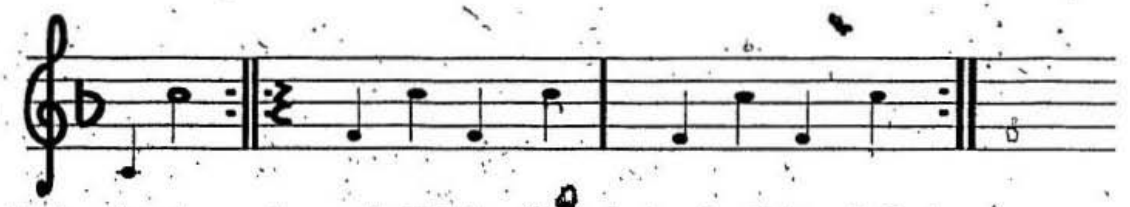
D. Oh Do You Hear?





Return to Section B to end the Medley.





4 Alto Xylophone (omit xylophone for Christmas Is Here).

* Adjust patterns for 4 after Christmas is Here.

Note: Depending on size of group, and developmental levels, this Medley may be used as a Canon.

I Hear Sleigh Bells

- adapted by K. Watts.
- French Folk Song

(Tune: Frére Jacques)